

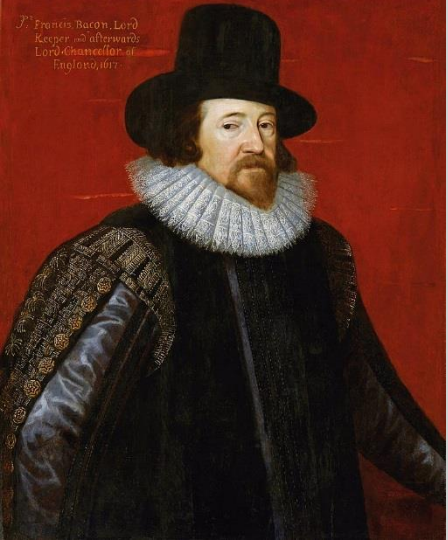


**Prezentarea rezultatelor științifice în
SESIUNE DE POSTERE**

20 APRILIE 2021

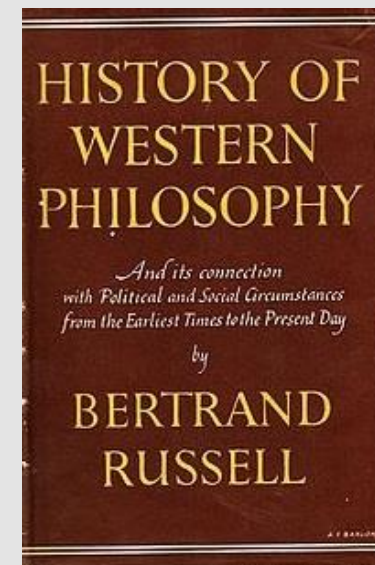
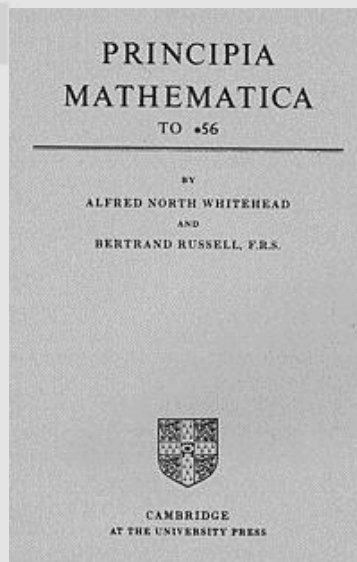
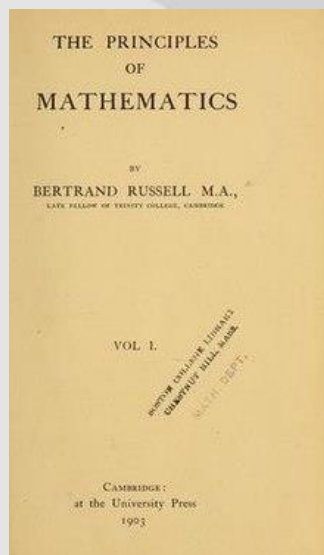
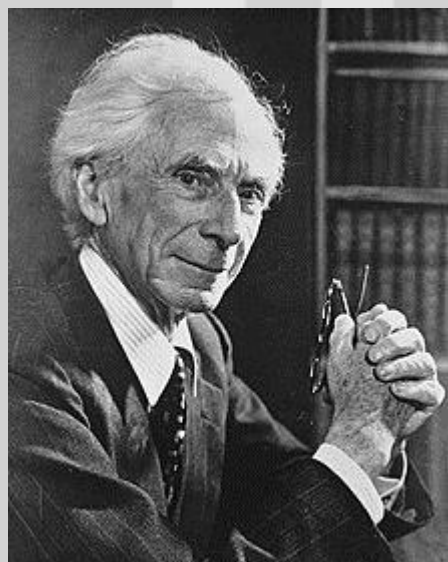
Seminar Scoala Doctorala 2020/2021

Prof.dr.ing. Nicolae VASZILCSIN



**Cunoașterea care nu este aplicabilă este mai mult o vanitate academică.
(Francis BACON, 1561 – 1626)**

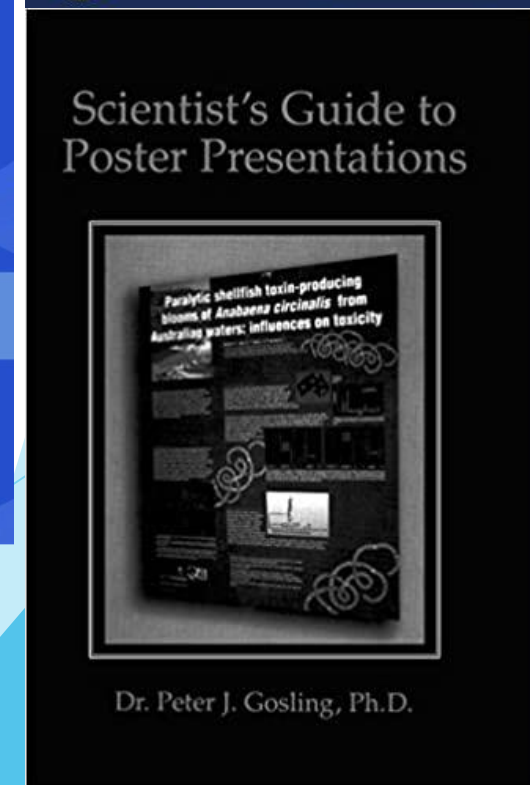
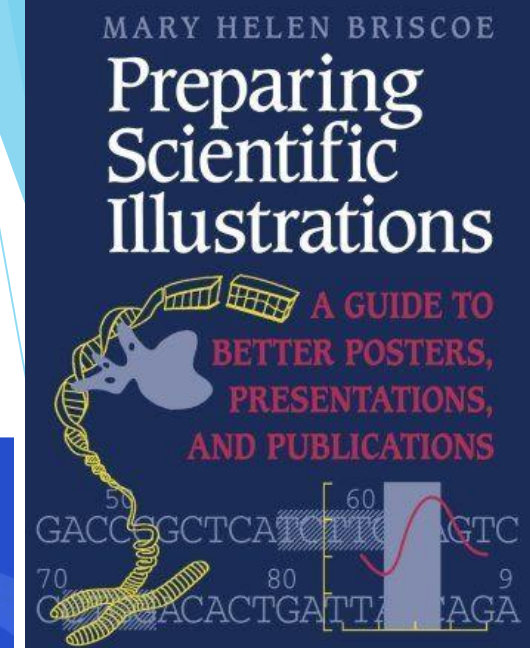
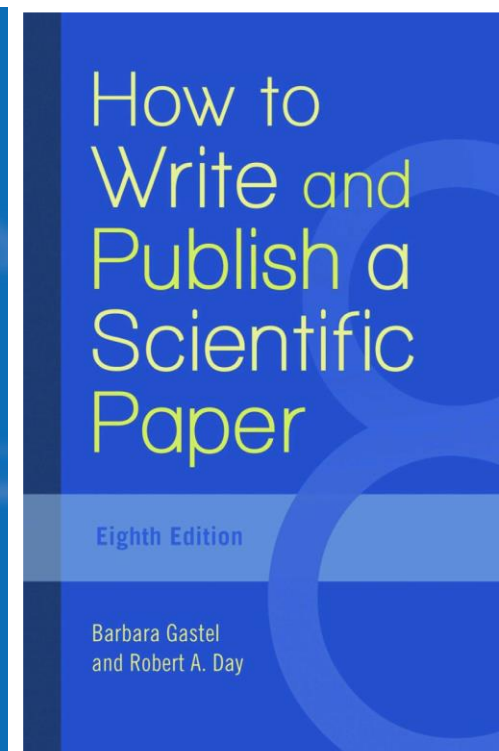
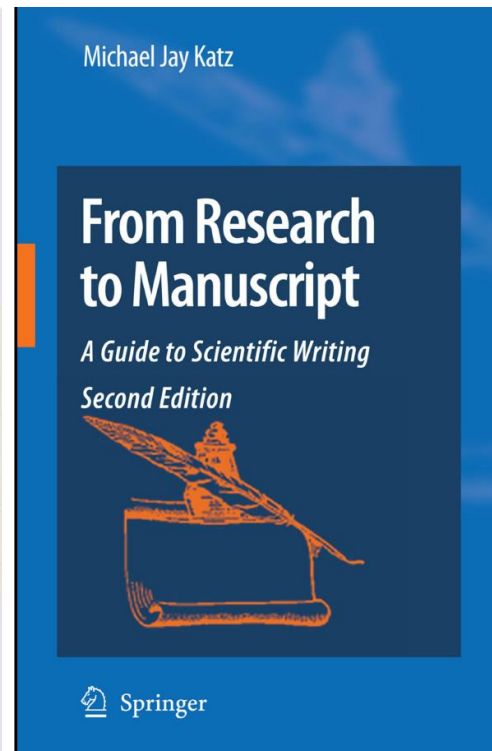
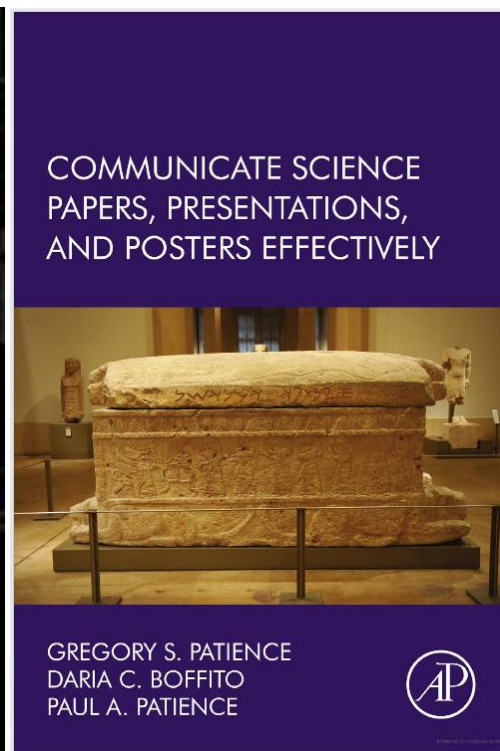
**Matematica, dacă este privită corect, posedă nu numai adevăr, ci și o frumusețe supremă – frumusețe rece și austeră, precum cea a sculpturii, fără apel la vreo parte a naturii noastre slabe.
(Bertrand Russell, 1872 – 1970) Premiul Nobel - 1950**



Ingineria nu se poate dezvolta pe baza unui empirism rudimentar.

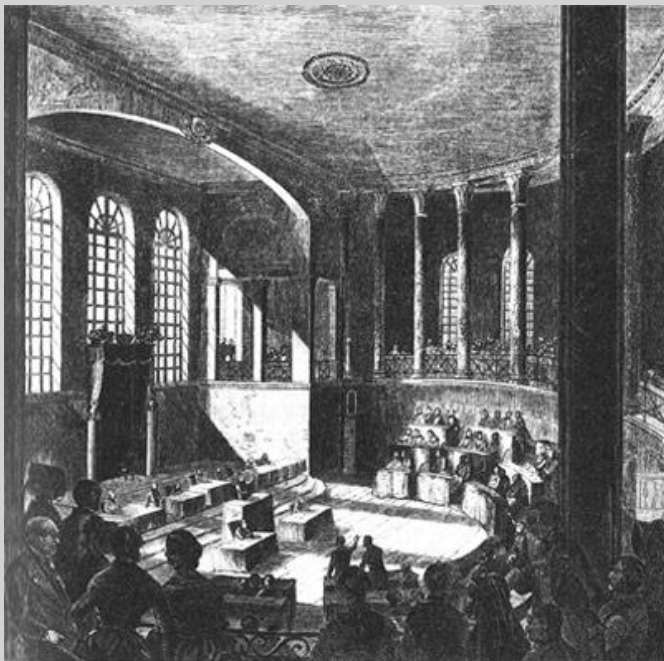
Bibliografie:

1. Nicholas Rowe, Academic & Scientific Poster Presentation, Springer, 2017, 202 p.
2. G. S. Patience, D. C. Boffito, P. A. Patience, Communicate Science Papers, Representations and Posters Effectively, Elsevier – Academic Press, 2015, 264 p.
3. M. J. Katz, From Research to Manuscript – a Guide to Scientific Writing, Springer, 2009, 206 p.
4. B. Gastel, R. A. Day, How to Write and Publish a Scientific Paper, Greenwood, 2016, 326 p.
5. M. H. Briscoe, Preparing Scientific Illustrations, Second Edition, Springer Science, 2012, 204 p.
6. P. J. Gosling, Scientist's Guide to Poster Presentation, Springer US, 1999, 142 p.

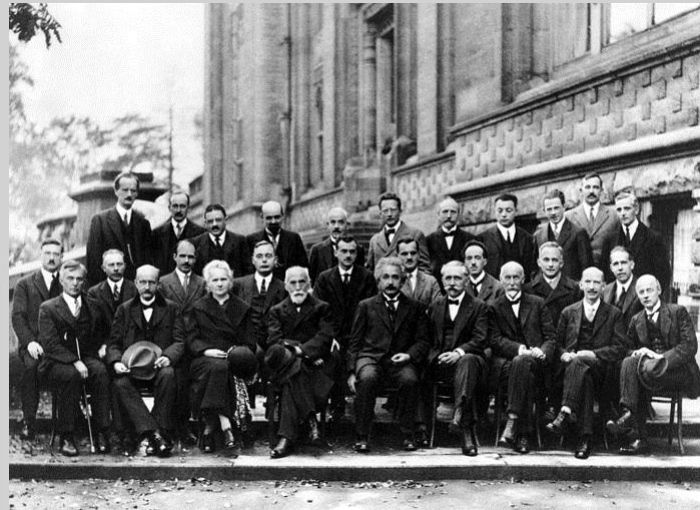


MANIFESTĂRI ȘTIINȚIFICE

- congrese
- simpozioane
- ateliere (workshop-uri)
- sesiuni
- conferințe
- seminarii



Karlsruhe Kongres 1860



Solvay Conference on Physics - 1927

E. Schrödinger, W. Pauli, W. Heisenberg, P. Debye,
P. A. M. Dirac, A. H. Compton, L. de Broglie, M. Born, N. Bohr;
I. Langmuir, M. Planck, M. Curie, A. Einstein, P. Langevin



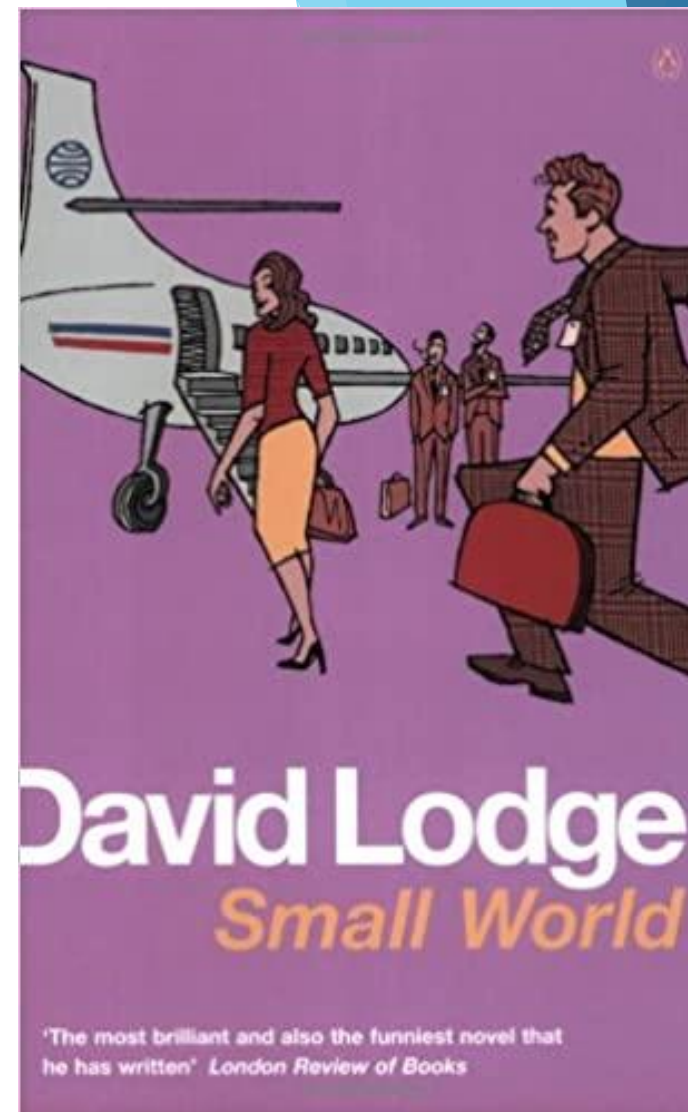
41st annual San Antonio Cancer Symposium 2019



David Lodge, *Ce mica e lumea!*, Editura Polirom, Editia a II-a, 2003.

Conferința modernă seamănă cu pelerinajul creștinilor din Evul Mediu prin faptul că le permite participanților să se înfrupte din toate plăcerile și distracțiile unei călătorii, chiar dacă nu sunt, chipurile, mânați decât de dorința austeră de a-și perfecționa cunoștințele. Desigur, trebuie îndeplinite și unele exerciții de penitență – eventual prezentarea unei lucrări sau auderea lucrărilor prezentate de alți participanți. Dar, cu această justificare, poți vizita locuri noi și interesante, poți întâlni lume nouă și interesantă, îți poți face relații noi și interesante; poți flecări în voie, dezlegându-ți sacul cu destăinuiuri; căci poveștile tale răsuflate, ei le găsesc pline de prospețime și viceversa; poți mânca, bea și petrece alături de oamenii aceștia în fiecare seară și, totuși, la sfârșit te poți întoarce acasă cu reputația sporită datorită seriozității tale intelectuale.

Participanții la conferințele de azi au în plus față de pelerinii de odinioară avantajul că, de obicei, cheltuielile le sunt decontate de instituția unde lucrează, cel mai adesea, probabil, o universitate.



SESIUNE DE POSTERE



Poster - mod de prezentare a unei lucrări sub formă afiș, prin care se asigură diseminarea și vizibilitatea rezultatelor obținute în cercetarea științifică:

Când apelăm la prezentare **POSTER**?

- rezultate preliminare
- testarea mediului academic asupra unei teme noi
- verificarea veridicității interpretării rezultatelor
- la începutul carierei științifice
- diseminarea unor lucrări deja publicate

Avantaje:

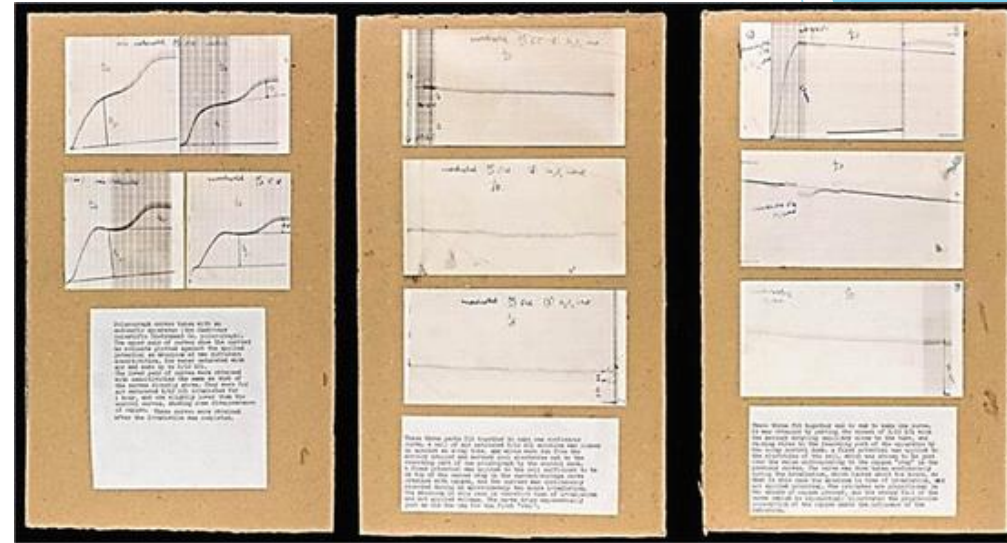
- format avantajos pentru comunicarea lucrărilor științifice,
- conținutul lucrării este extrem de „vizual”
- permit mare flexibilitate grafică:
 - grafică color
 - combinarea tehnicii fotografice cu grafică pe calculator
- posterele îmbunătățesc dialogul cu cei interesați:
 - timp crescut pentru discuții intensive asupra rezultatelor lucrării
 - oportunități pentru întrebări sau comentarii legate de clarificare sau extinderea punctelor aduse sau a tehnicilor adoptate
- oportunitate de contact informal cu cercetătorii din același domeniu
- mijloc convenabil de a stabili contacte personale și de colaborare

Dezavantaje:

- nu toate tipurile de rezultate ale cercetării se pretează la formatul posterului: de exemplu, rezultate din experimente complexe care implică mari cantități de analize matematice pot fi dificil de prezentat în mod clar ca poster
- necesita mult timp pentru pregătire
- sunt mai greu de transportat



The first recorded international poster sessions were held during the sixth FEBS meeting in 1969 in Madrid (FEBS 1969).



FORMAT POSTER

Finished poster size [cm]

70×100

91×122

100×100

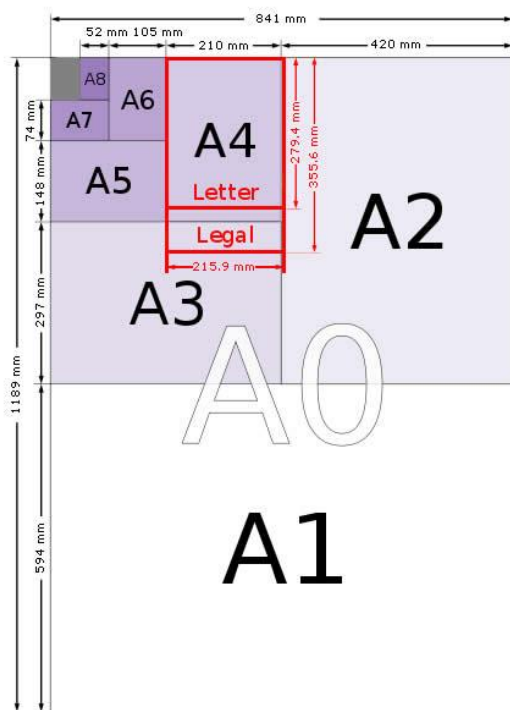
100×140

100×200

Standard size [cm]

A0: 84,1×119,8

A1: 59,4×84,1





Metallic oxide coating of Ti for DSA used in chlorine production for water chlorination

Marica Constantin MIRICA¹, Mirica IORDA², Nicolae MIRICA³, Nicolae VASILESCU⁴, Ionel BALCIU⁵, Marinela NICOLAE⁶
¹National Institute of Metallurgy and Materials Science, Bucharest, Romania
²University of Medicine and Pharmacy, Bucharest, Romania
³University of Medicine and Pharmacy, Bucharest, Romania
⁴University of Medicine and Pharmacy, Bucharest, Romania
⁵University of Medicine and Pharmacy, Bucharest, Romania
⁶University of Medicine and Pharmacy, Bucharest, Romania

Introduction

The most widely used water disinfectant is chlorine. Chlorine disinfection is based on oxidation, therefore it should be obtained when and where it is needed and in specific quantities. For example, instead of pumping water with a relatively high concentration of chlorine to treatment plants, generation can be done along the main pipes. The chlorine releasing process is based on electrolysis, based on chlorine concentration in water. This way, the chlorine concentration is homogeneous along the water system instead of decreasing toward the consumer.

The graphite anodes used in the past for chlorine production were replaced with dimensionally stable anodes (DSA). First developed in 1980 by Standard Electrode Corporation, DSA consists of a titanium metal substrate coated with metallic oxide film. A large variety of coatings compositions and thicknesses can be obtained, with different properties electrocatalytic activity, life span, corrosion resistance in various environments, etc. Therefore the DSA can be custom made to fit the specific process requirement. A very important process in the substrate preparation, as its surface must be suitable in order to work properly after coating.

Several methods are comparatively investigated (mechanical, chemical and combined methods). The quality of prepared substrate surface is investigated by PDI, electrodepositing on it. The adherence, homogeneity and uniformity of PDI, depend on a number of prepared substrate surface quality.

Results and discussion

1. Quality of prepared substrate surface

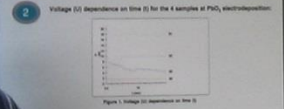
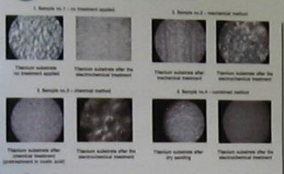


Figure 1. Voltage (V) dependence on time (t) for 4 samples at PDI electrodepositing.



2. The figure presents the polarization curves for metallic oxide coated with RuO₂/TiO₂ at different values RuO₂/TiO₂, respectively a constant value RuO₂/TiO₂ in 100 g/l NaCl solution (pH=1, at 80 °C).



Figure 2. Polarization curves for metallic oxide coated with RuO₂/TiO₂ at different values RuO₂/TiO₂, respectively a constant value RuO₂/TiO₂ in 100 g/l NaCl solution (pH=1, at 80 °C).

3. Table 1. Tafel coating composition for three common electrodes: RuO₂/TiO₂, IrO₂/TiO₂, and PtO₂/TiO₂.

Electrode	RuO ₂ (g)	TiO ₂ (g)	IrO ₂ (g)	PtO ₂ (g)
RuO ₂ /TiO ₂	1.0	1.0	-	-
IrO ₂ /TiO ₂	-	1.0	1.0	-
PtO ₂ /TiO ₂	-	1.0	-	1.0

4. Figure 3. Polarization curves for anodes with RuO₂/TiO₂ coating.

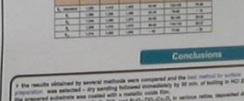


Figure 3. Polarization curves for anodes with RuO₂/TiO₂ coating.

5. Table 2. Tafel coating composition for anodes with IrO₂/TiO₂ and PtO₂/TiO₂ coating.

Electrode	IrO ₂ (g)	TiO ₂ (g)	PtO ₂ (g)
IrO ₂ /TiO ₂	1.0	1.0	-
PtO ₂ /TiO ₂	-	1.0	1.0

Conclusions

- The results obtained by several methods were compared and the best method for surface preparation was selected - dry spraying followed immediately by 10 min of boiling in HCl 20 %.
- The prepared substrates were coated with a metallic oxide film.
- A general DSA composition (RuO₂/TiO₂ and IrO₂/TiO₂) in various ratios, depending dimensions and DSA area, was obtained.
- The electrocatalytic properties of these coatings were evaluated by plotting the polarization curves of chlorine liberation from sodium solution.
- In the range of obtained coatings, the best results for chlorine production were obtained.
- The results were compared with the results obtained by electrodepositing on titanium.
- The best results were obtained by electrodepositing on titanium.
- The best results were obtained by electrodepositing on titanium.
- The best results were obtained by electrodepositing on titanium.



Hybrid inorganic-organic polymer composites for polymer-electrolyte fuel cells

Andrea Ambrosini
Cy Fujimoto, Ron Stanis, Chris Cornelius
Sandia National Laboratories, Albuquerque, NM, USA E-mail: ambrosini@sandia.gov



INTRODUCTION

Polymer Electrolyte Membranes (PEM) Fuel Cells

PEM fuel cells are currently the leading candidates for battery replacement in portable electronics and stationary applications. One of the primary technical challenges of PEMs is their poor performance at low relative humidities due to poor proton transport in the polymer membrane. Reversal of these humidity limitations, fuel cells utilizing organic polymer membranes can operate only at temperatures $>150^\circ\text{C}$. The development of polymer electrolytes that can operate between $120-150^\circ\text{C}$ and at lower relative humidities will result in more efficient fuel cell systems.

Current State of the Art Membranes: Nafion

Current Shortcomings:
• Proton conductivity is water dependent
• Polymer must remain hydrated
• Material cost (\$/H2Ocm)
• Corrosion requirements result in:
• Need for constant water supply
• More complicated sealing systems
• Operating temperature $>150^\circ\text{C}$
• Low catalyst efficiency

Sulfonated Diels-Alder Poly(Phenylene) (SDAPP)

Based on what the literature has shown, SDAPP membranes are more promising than Nafion.
SDAPP advantages are:
• Thermal and chemical stability
• Superior mechanical properties
• Low catalyst efficiency
• But their proton conductivity is currently lower than Nafion

Heteropolycyclic (HPA)

Single water molecule counterbalanced by proton
• Can conduct up to 25 mS/cm
• Water uptake of these systems operates at $120-150^\circ\text{C}$
• Proton conductivity of 175 mS/cm (HPA) at 120°C and 100% RH

Hybrid Organic-Inorganic Composites

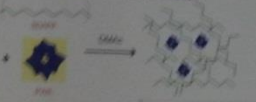
Combine the best characteristics of organic polymers with the high temperature stability, conductivity, and functionality of inorganic heteropolycyclics.

Potential benefits over current membranes:
• Increased temperature stability
• Improved conductivity
• Improved water retention
• Increased mechanical strength

SYNTHESIS AND CHARACTERIZATION

First Approach

Physical incorporation of HPA into polymer by co-extruding from a DMAC solution



• The effort is under ongoing monitoring of the work
• A definite test shows strong decrease in performance over time

Second Approach

Synthesis of SiO_2 -PBA particles followed by physical incorporation of particles into film



• The PBA particles present of inorganic PBA or SiO_2
• PBA shows presence of Si and W
• Catalysts do not decrease in water over 1 week period, but do water uptake but not in polymer hybrid because water

Second Approach (continued)

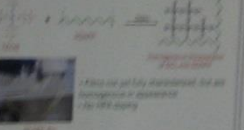


The SEM of these composites shows a morphology of small particles dispersed in a polymer matrix.

• WCA between 1.8-2.5 range
• Water uptake between 10-20% (room temperature)
• Loading of Si-PBA into polymer not observed for this approach because of the low solubility of the inorganic particles in the polymer matrix

Third Approach

In situ synthesis of silica network within polymer



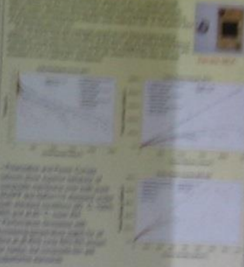
PROPERTIES

Conductivity

In-plane membrane proton conductivity at atmospheric impedance spectroscopy



Fuel Cell Tests



CONCLUSIONS

Summary

HPA composites showed the most promising results in terms of proton conductivity and mechanical properties. The in situ synthesis of silica network within the polymer matrix showed the most promising results in terms of proton conductivity and mechanical properties.

Future Work

• Develop a more efficient synthesis of HPA particles
• Develop a more efficient synthesis of silica network within the polymer matrix
• Develop a more efficient synthesis of the polymer matrix

Acknowledgments

Support by the Sandia National Laboratories, Albuquerque, NM, USA. E-mail: ambrosini@sandia.gov



Thin Protective Coating of ZnO Using Atomic Layer Deposition

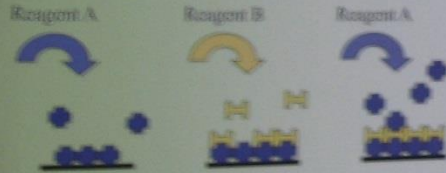
Margaret E. Welk, Robert K. Grubbs, Andrea Ambrosini
Sandia National Laboratories
Albuquerque, NM 87185

Abstract

In gas separations, sulfur impurities such as SO_2 and H_2S in the ppm level will poison functional separation membranes made of metal (Pt) and many metal oxide materials. ZnO is a well known sulfur sorbent that is converted in the process to ZnS. Using Atomic Layer Deposition we have coated a membrane support with ZnO as a protective layer. The effect of cycling between ZnO and ZnS on the morphology of the thin layer of sorbent material is studied.

Atomic Layer Deposition

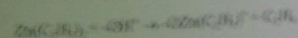
- Sequential exposure to reagents
- Each reagent chemisorbs to surface but not to itself to create a monolayer



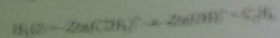
Fine control over layer thickness to atomic scale
Excellent at conformally coating high aspect ratio structures

To form the ZnO layer, we cycled between Diethyl Zinc $[\text{Zn}(\text{C}_2\text{H}_5)_2]$ and water at 200 °C.

DZLZ half reaction:



H₂O half reaction:



(* = surface species)

Characterization of as Prepared Samples

We deposited 450 Å of ZnO on a $\gamma\text{-Al}_2\text{O}_3$ mesoporous disk support (average pore diameter is 1.8 µm).

BET

The coated support has a surface area of $1.19 \pm 0.05 \text{ m}^2/\text{g}$, whereas the uncoated support has a surface area of $1.65 \pm 0.04 \text{ m}^2/\text{g}$.



SEM

The globular Al_2O_3 support is uniformly coated. No crystalline facets are apparent.

Sulfur Uptake

While ZnO scavenges sulfur readily, the phase change and corresponding lattice parameter change between ZnO and ZnS leads to discrepancy in solid pellets. To investigate the effect of cycling on the thin ZnO coating, several ZnO coated supports were placed in a furnace and heated to 500 °C at a ramp rate of 1 degree per minute. The supports were exposed to 2% H_2S in N_2 flowing at a rate of 1 to 5 mL/min for 4 hours, then the gas was switched to air for 15 hours. This cycle was repeated 7 times. Samples were taken for analysis after one cycle, three cycles, and seven cycles.

1 Cycle



3 Cycles



7 Cycles



The first conversion to ZnS results in crystalline formation visible in the SEM. Blending increases visibility in the third and seventh cycle images. XRD shows complete conversion between ZnO and ZnS.

Acknowledgments

The authors wish to thank DOE (DE-FC02-01-OR-21400) for funding.

Conclusions

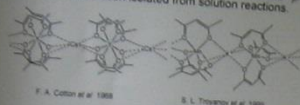
While crystalline does increase over several cycles, this conversion will not affect the sulfur capacity. As the thickness of the porous support increases, loss of ZnO material is a potential concern. ZnO may be used to protect sensitive membranes from sulfur poisoning.

Heterometallic β -Diketonates as Potential Single-Source Precursors for Oxide-Based Materials

Evgeny V. Dikarev*, Haitao Zhang and Bo Li
Department of Chemistry, University at Albany

Introduction

Although heterometallic β -diketonates are promising precursors for multimetallic oxides, they are rare species due, in part, to chelating character of the ligand. Since 1960s, only a limited number of heterometallic β -diketonates have been isolated from solution reactions.

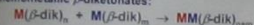


The focus of our investigation was to develop a simple, high-yield synthetic approach to heterometallic main group-transition metal β -diketonates.

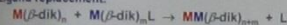
Synthetic Strategy

We suggested several low-temperature synthetic routes that appear to be general for preparation of heterometallic β -diketonates incorporating a wide range of s-, p-, d-, and f-metals.

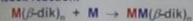
Interaction between coordinatively unsaturated homometallic β -diketonates:



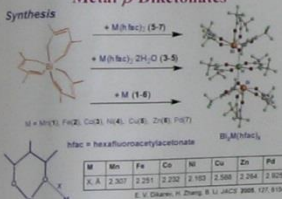
Ligand replacement:



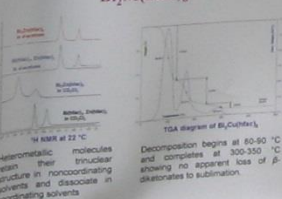
Redox reaction:



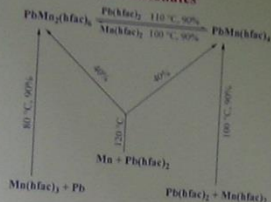
Heterometallic Bismuth-Transition Metal β -Diketonates



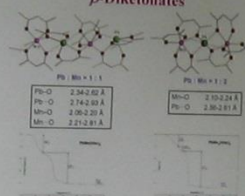
Solution and Thermal Behavior of $\text{Bi}_2\text{M}(\text{hfac})_8$



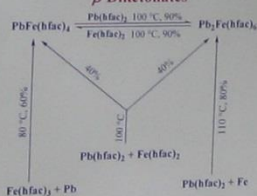
Controlled Syntheses of Pb-Mn β -Diketonates



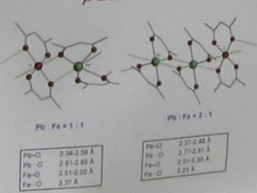
Pb(II)-Mn(II) Heterometallic β -Diketonates



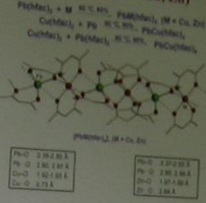
Controlled Syntheses of Pb-Fe β -Diketonates



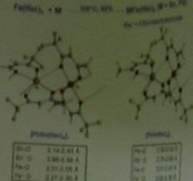
Pb(II)-Fe(II) Heterometallic β -Diketonates



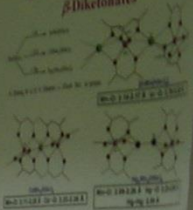
PbM(hfac)₄ (M = Cu, Zn)



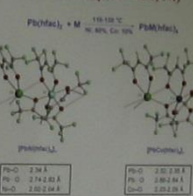
MFe(hfac)₄ (M = Pb, Sn)



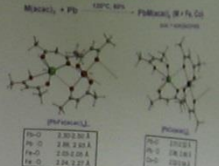
Heterometallic Manganese β -Diketonates



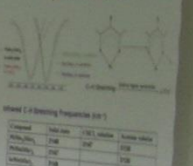
PbM(hfac)₄ (M = Co, Ni)



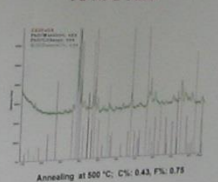
Non-Fluorinated Heterometallic β -Diketonates



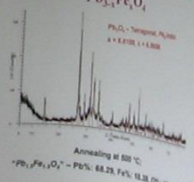
IR Study of Heterometallic β -Diketonates



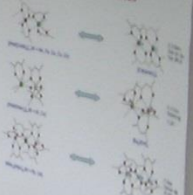
Decomposition of PbNi(hfac)₄: New Pb-Ni-O Phase



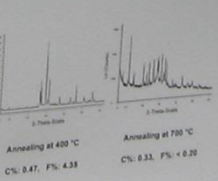
Decomposition of PbFe(hfac)₄: Pb₃Fe₂O₇



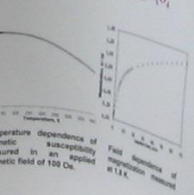
Structural Analogy with Homometallic β -Diketonates



Decomposition of PbNi(hfac)₄ at Different Temperatures



Magnetic Study of Pb₃Fe₂O₇



Summary

- A number of heterometallic β -diketonates incorporating main group and transition metals have been isolated by low-temperature solution reactions.
- Heterometallic β -diketonates are built on Lewis acidic non-coordinating solvents and dissociate into homometallic polymeric intermediates.
- Heterometallic β -diketonates retain their structure in non-coordinating solvents and dissociate into homometallic polymeric intermediates.
- Thermal decomposition of heterometallic β -diketonates yields new multimetallic oxides that cannot be obtained by conventional methods.

Evgeny V. Dikarev
Haitao Zhang
Bo Li
ACS APG, 2007, 107, 107









05/05/2008 16:38



John B. Goodenough

The Nobel Prize in Chemistry 2019

Born: 25 July 1922, Jena, Germany

Affiliation at the time of the award: University of Texas, Austin, TX, USA

M. Stanley Whittingham

The Nobel Prize in Chemistry 2019

Born: 22 December 1941, United Kingdom

Affiliation at the time of the award: Binghamton University,
State University of New York, New York, NY, USA

Akira Yoshino

The Nobel Prize in Chemistry 2019

Born: 30 January 1948, Suita, Japan

Affiliation at the time of the award: Meijo University,
Nagoya, Japan, Asahi Kasei Corporation, Tokyo, Japan

The Electrochemical Society
INTERFACE

VOL. 28, NO. 4, Winter 2019

**2019 NOBEL PRIZE
IN CHEMISTRY WINNERS**

“for the development of lithium-ion batteries”



John B.
Goodenough

M. Stanley
Whittingham

Akira
Yoshino

STRUCTURA GENERALĂ A UNUI POSTER

1. Secțiunea de indexare:

titlu, autori, apartenență, **istoric**, rezumat, **cuvinte cheie**, bibliografie, **logo**.

2. Secțiunea de conținut:

Introducere (**scop**), metode experimentale, rezultate, **discuții**, concluzii

3. Secțiunea suplimentară: Mențiuni, mulțumiri

4. Secțiune complementară: **Anexe**



May 21st – 23rd 2014, Brno, Czech Republic, EU



Politehnica University of Timișoara

DUAL AMORPHOUS PHASED BULK METALLIC GLASS WITH SOFT MAGNETIC PROPERTIES

Dacian Ioan TOȘA, Andrei CAZACU, Viorel Aurel ȘERBAN

“Politehnica” University of Timisoara, Faculty of Mechanical Engineering, Department of Materials and Manufacturing Engineering, Mihai Viteazu Avenue, No.1, 300222, Timisoara, Romania,

Abstract

In recent years, the dual amorphous phased bulk metallic glass (DAPBMGs) was studied with interest by researchers of materials science, which is a new class of bulk metallic glasses (BMGs). These materials consist of several amorphous phases and are expecting to bring together all the favorable properties for each phase. The DAPBMGs with soft magnetic properties can be obtained by powder metallurgy process; the amorphous powders can be produced either by mechanical alloying (MA) or by high pressure Ar gas atomization. Compacting of the glassy alloy powder to obtain the dual amorphous phased bulk metallic glass can be achieved by using a hot-pressed technique (HP) or by spark plasma sintering (SPS) process, in the supercooled liquid region of the amorphous phases. There are presented some families of dual amorphous phased bulk metallic glass (DAPBMGs) with soft magnetic properties. This paper synthesizes the current work of the researchers that is the processing, characterization and understanding of these new classes of materials, the dual amorphous phased bulk metallic glass with soft magnetic properties.

1. INTRODUCTION

The amorphous alloys were first discovered by Duwez at Caltech, SUA, in 1960, in Au-Si system [1]. In last decades, many Fe -based BGAs have been found suitable for various applications [3].

For all that, the applications of Fe -based BGAs with soft magnetic properties are limited because the glass forming ability (GFA) of these alloys are low and also they are brittle [5]. In recent years, the dual amorphous phased bulk metallic glass (DAPBMGs), was studied with interest by researchers of materials science, which is a new class of bulk metallic glasses (BMGs). These materials consist of several amorphous phases and are expecting to bring together all the favorable properties for each phase. For example, the relatively brittle Fe -based BGAs can be improved by alloying it with high-toughness Zr-based BGAs [7].

2. METHODS OF PROCESSING

The DAPBMGs with soft magnetic properties can be obtained by powder metallurgy process, the amorphous powders can be produced either by mechanical alloying (MA) and mechanical milling (MM) or by high pressure Ar gas atomization [10].

2.2.1 Hot pressing

The amorphous powders are introduced in a graphite die, then are heated by induction heating via induction generator in the supercooled liquid region of the amorphous phases, followed by applying of an axial pressure, in an inert gas atmosphere of a vacuum chamber. A schematic of hot pressing device is shown in Fig. 1 [19].

2.2.2 Spark plasma sintering

Spark plasma sintering (SPS) is a novel technique developed for rapid sintering of metals, ceramics and composite materials and has an excellent potential for obtain of BMGs. SPS involves: the powders are placed in a graphite die and then is applied a pulsed direct electrical current (DC) from the DC pulse generator, followed by the application of an uniaxial pressure by the punches to achieve the consolidation of the powders in a vacuum and cooling water chamber [20,22].

3. FAMILIES AND PROPERTIES OF DAPBMGS

In Table 1 there are presented some families of dual amorphous phased bulk metallic glass (DAPBMGs) with soft magnetic properties. As we can observe in Table 2 and Table 3, have been produced a DAPBMGs with soft magnetic properties, composed of two different glassy phases, Zr- and a Fe-based. These materials have been found with an improvement of the glass forming ability as shown in Fig 3.a) and the tenacity due to the addition of Zr-based amorphous phases, while the soft magnetic properties are maintained due to Fe-based amorphous phases as high saturation magnetization (MS) and permeability, low coercive (HC) force [22]. DAPBMGs was synthesized in shape of disc, and after consolidation they kepted a considerable soft magnetic properties, similar to the classics BMGs Fe-based, as is shown in Fig 3.b).

Table 2 Properties of some advanced materials

Advanced materials	Ms [T]	Hc [A/m]	Ref
DAPBMGs 5	0,59	27,60	[23]
DAPBMGs 4	0,59	28,91	[24]
Fe-Si-B-P	1,51	0,80	[25]
Fe-Si-B-P-C	1,44	1,20	[26]
Fe-B-Si-P-Nb	1,45	1,00	[27]

Table 3 Glass forming ability

Advanced materials	ΔT_x [K]	Ref
DAPBMGs 5	47	[23]
Zr-Cu-Ni-Al-Ti	83	
Fe-Ni-P-B	40	

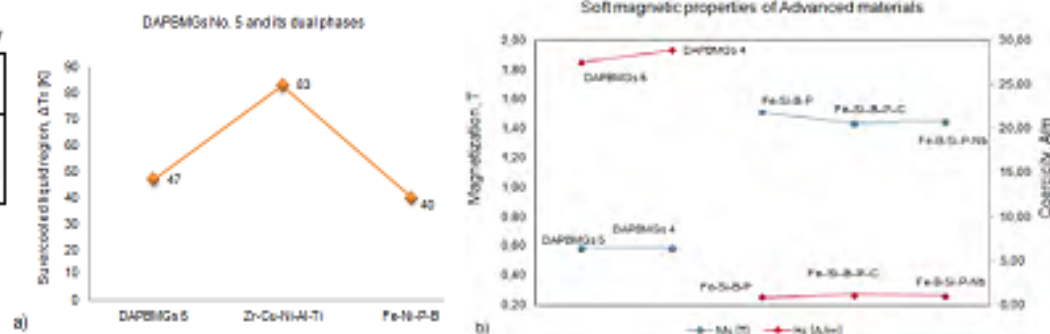


Fig 3 Glass forming ability a) and soft magnetic properties of recent advanced materials b)

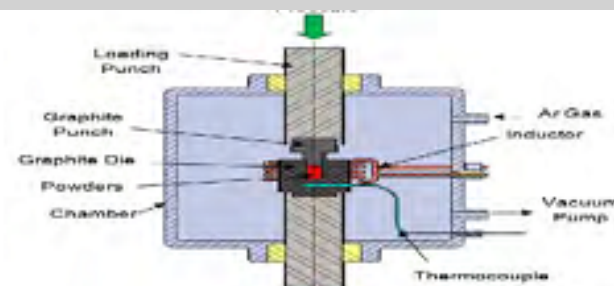


Fig. 1 Schematic drawing of a HP device [19]

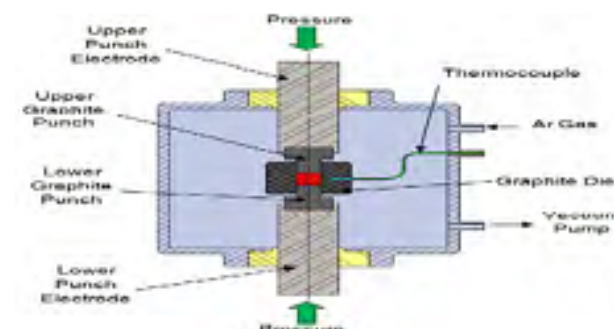


Fig 2 Schematic drawing of a SPS device [20,22]

Table 1 DAPBMGs with soft magnetic properties reported

Nr.	DAPBMGs with soft magnetic properties		Ref
	Phase 1	Phase 2	
1	Co-Fe-Zr-B	Fe-Cu-Nb-Mo-Si-B	[13]
2	Ni-Nb-Zr-Ti-Pt	Fe-Si-B-Nb	[20]
3	Fe-Co-Si-B-Nb	Pd-Ni-P-Cu	[19]
4	Fe-Ni-P-B-Ga	Zr-Cu-Ni-Al-Ti	[24]
5	Zr-Cu-Ni-Al-Ti	Fe-Ni-P-B	[23]

RESULTS AND DISCUSSION

Nanoparticles of zinc substituted cobalt ferrites $\text{Co}_{1-x}\text{Zn}_x\text{Fe}_2\text{O}_4$ (where $x = 0.0, 0.2, 0.4, 0.6, 0.8$ and 1.0) were prepared using the method of carboxylate complexes decomposition described in Figure 1.

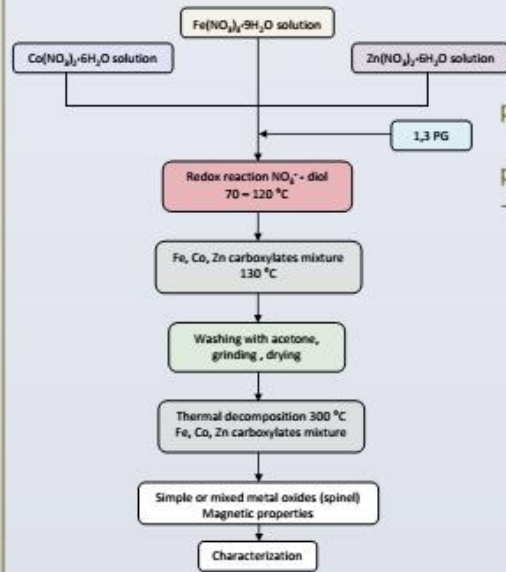


Fig.1 General preparation scheme of cobalt zinc ferrite

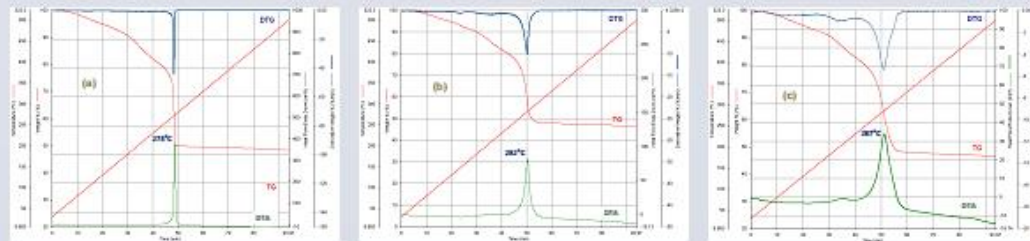


Fig.3 Thermal curves of the carboxylates formed at 130 °C for the ratios : $\text{Co}_{0.6}\text{Zn}_{0.4}\text{Fe}_2\text{O}_4$ (a) , $\text{Co}_{0.4}\text{Zn}_{0.6}\text{Fe}_2\text{O}_4$ (b), $\text{Co}_{0.2}\text{Zn}_{0.8}\text{Fe}_2\text{O}_4$ (c)

- The evolution of the thermal curves of the Fe, Co, Zn carboxylates mixtures synthesized at 130 °C shows that the thermal decomposition is unitary (exothermic effect at ~ 300 °C, Fig.3);
- The residual mass represents a mixture of simple metal oxides or spinels (CoFe_2O_4 , ZnFe_2O_4 , $\text{CoZnFe}_2\text{O}_4$)
- The sample with higher Zn content presents higher thermal stability (Fig.3 b,c);

Thermal and FT-IR analyses confirm the formation of the carboxylate compounds in the redox reaction metal nitrate – diol.

All samples obtained at 130 °C were annealed at 350 °C, 600 °C and 1000 °C and characterized

$\text{pK}_a [\text{Fe}(\text{H}_2\text{O})_6]^{3+} = 2.22 \rightarrow \text{redox reaction} \sim 70^\circ\text{C}$

$\text{pK}_a [\text{Co}(\text{H}_2\text{O})_6]^{2+} = 11$ and $\text{pK}_a [\text{Zn}(\text{H}_2\text{O})_6]^{2+} = 12 \rightarrow \text{redox reaction} \sim 120-130^\circ\text{C}$

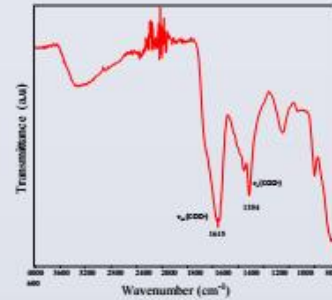


Fig.2 FT-IR spectrum of the complex combinations of metal ions and the carboxylate anion at 130 °C

1000 °C: ZnFe_2O_4 , CoFe_2O_4 , $\text{Co}_{0.4}\text{Zn}_{0.6}\text{Fe}_2\text{O}_4$

- The assignment to the possible phases of the XRD pattern maxima of the powders annealed at 350 °C: ZnFe_2O_4 , CoFe_2O_4 , $\text{CoZnFe}_2\text{O}_4$, $\gamma\text{-Fe}_2\text{O}_3$, Co_3O_4 which crystallize in the cubic system, is difficult because of the narrow maxima.
- At 600 °C, $\gamma\text{-Fe}_2\text{O}_3$ stabilizes as $\alpha\text{-Fe}_2\text{O}_3$.
- For $x=1$, ZnFe_2O_4 crystallizes as single phase at 350, 600 and 1000 °C.
- For $x=0$ and $1>x>0$ at 600 °C the pattern shows $\alpha\text{-Fe}_2\text{O}_3$ proving and showing that the powders annealed at 350 °C contain $\gamma\text{-Fe}_2\text{O}_3$, but also Co_3O_4 which turns to CoO at 900 °C. CoO reacts with $\alpha\text{-Fe}_2\text{O}_3$, showing that at 1000 °C the single, well crystallized phase is the nanoferrite $\text{Co}_{1-x}\text{Zn}_x\text{Fe}_2\text{O}_4$, independent on the ion ratio $\text{Co}^{2+}:\text{Zn}^{2+}$.

Fig.6 and table 1 present the evolution of the saturation magnetization σ_{sat} (emu/g) and lattice parameter, a (Å) depending on the concentration of Zn^{2+} according to literature, theoretical and experimental data.

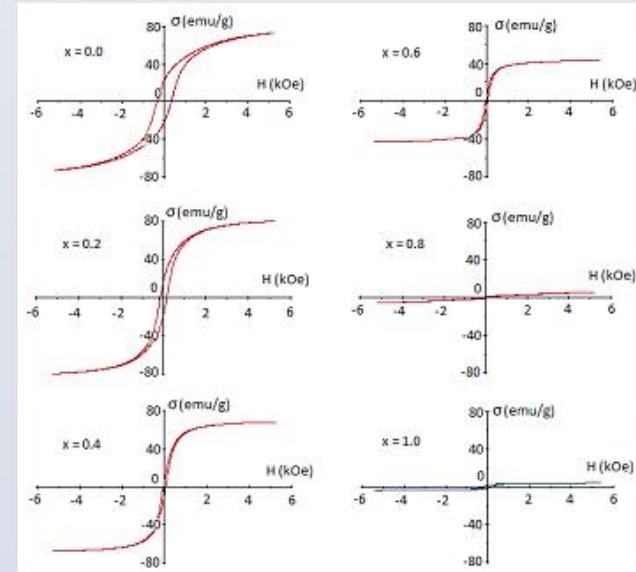


Fig.6 Magnetic curves for $\text{Co}_{1-x}\text{Zn}_x\text{Fe}_2\text{O}_4$ annealed at 1000 °C

Table 1. Lattice parameter, crystallite size and saturation magnetization of the synthesized samples $\text{Co}_{1-x}\text{Zn}_x\text{Fe}_2\text{O}_4$ ($x = 0 + 1.0$) at 1000 °C

Samples annealed at 1000 °C	σ_{sat} (emu/g)	Average crystallite size (nm)	Lattice constant (Å)
CoFe_2O_4	83.9	81.9	8.390
$\text{Co}_{0.8}\text{Zn}_{0.2}\text{Fe}_2\text{O}_4$	84.92	67.5	8.404
$\text{Co}_{0.6}\text{Zn}_{0.4}\text{Fe}_2\text{O}_4$	68.01	77.5	8.417
$\text{Co}_{0.4}\text{Zn}_{0.6}\text{Fe}_2\text{O}_4$	43.08	80.2	8.431
$\text{Co}_{0.2}\text{Zn}_{0.8}\text{Fe}_2\text{O}_4$	8.86	74.2	8.436
ZnFe_2O_4	4.92	86.1	8.440

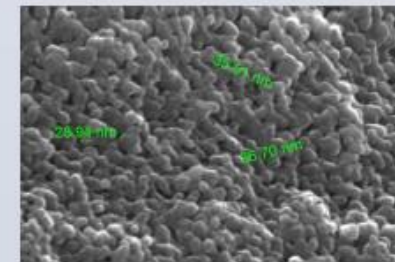


Fig.7 SEM image of sample $\text{Co}_{0.4}\text{Zn}_{0.6}\text{Fe}_2\text{O}_4$ annealed at 600 °C

Fig 3 Glass forming ability a) and soft magnetic properties of recent advanced materials b)

4 OUTLOOKS

We propose to perform a DAPBMGs with soft magnetic properties, based Zr and Fe. We chose the following families of alloys: Zr-Cu-Al-Ni-Co-C and Fe-Co-P-B-Si-C. We will do more experiments, and we will choose the right dosage between this those two amorphous phases for obtaining the best soft magnetic properties as larger sizes and also we want to study the mechanical properties of this material.

5 CONCLUSIONS

A DAPBMGs with soft magnetic properties can be produced by different methods of powder metallurgy. Similarly to a composite material, DAPBMGs is expected to have the properties of the both amorphous metal alloys. Obtain of much larger sizes samples than the classic BMGs with soft magnetic properties will extend their further applications in industry.

ACKNOWLEDGEMENTS

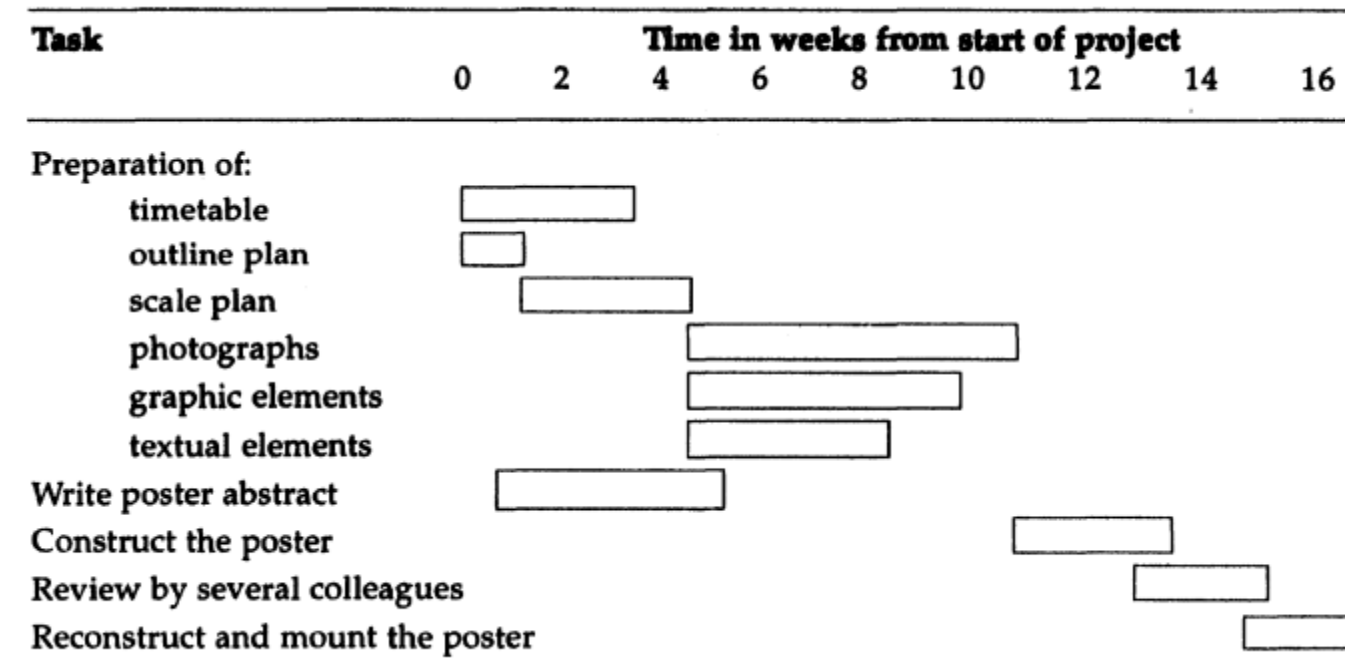
This work was partially supported by the strategic grant POSDRU/159/1.5/S/137070 (2014) of the Ministry of National Education, Romania, co-financed by the European Social Fund – Investing in People, within the Sectoral Operational Programme Human Resources Development 2007-2013

REFERENCES

- [1] KLEMENT W, WILLENS RH, DUWEZ P. Non-Crystalline structure in solidified gold-silicon alloys. *Nature* 1960; 187 (4740):869-70
- [3] INOUE A, GOOK JS. *Mater Trans JIM*
- [5] MILLER, P. LIAN, *Bulk Metallic Glasses: An Overview*, Springer, New York, 2008
- [7] F.LI, T.ZHANG, S. GUAN AND N. SHEN; *Mater Lett.* 59 (2005) 1453-1457
- [10] SEIDEL M, ECKERT J, BACHER I, REIBOLD M, SCHULTZ L; *Progress of solid-state reaction and glass formation in mechanically alloyed Zr65Al7.5Cu17.5Ni10*; *Acta Mater* 2000;48:3657-70
- [13] J. FLUZER, J. BEDNARCIK, P. KOLLAR, S. ROTH; *Structure and soft magnetic properties of the bulk samples prepared by compaction of the mixtures of Co-based and Fe-based powders*
- [19] N. YODOSHI, R. YAMADA, N. MORITA, A. KAWASAKI, R. WATANABE; *Synthesis of Fe Based Metallic Glass-Pd Based Metallic Glass Composite by Slightly Pressured Liquid Phase Sintering*; *Materials Transactions*, Vol. 51, No. 11 (2010) pp. 2056 to 2062
- [20] GUOQIANG XIE, D.V. LOUZGUINE-LUZGIN, AKIHISA INOUE; *Formation and properties of two-phase bulk metallic glasses by spark plasma sintering*; *Journal of Alloys and Compounds* 5096 (2011) S214–S218
- [22] ASHISH KUMAR SINGH; *spark plasma sintering of iron based amorphous alloys, composites, and coatings*; July, 2010
- [23] ZAN BIAN, TAO ZHANG, WEI ZHANG AND AKIHISA INOUE; *A New Soft Magnetic Bulk Metallic Glass with Dual Glass Phases*; *Materials Transactions*, Vol. 44, No. 11 (2003) pp. 2410 to 2413
- [24] FUSHAN LIA, TAO ZHANG, SHAO KANG GUAN, HINGFU SHEN; *A novel dual-amorphous-phased bulk metallic glass with soft magnetic properties*; *Materials Letters* 59 (2005) 1453–1457
- [25] A. MAKINO, T. KUBOTA, M. MAKABE, C.T. CHANG, A. INOUE; *FeSiBP metallic glasses with high glass-forming ability and excellent magnetic properties*; *Materials Science and Engineering B* 148 (2008) 166–170
- [26] AKIHIRO MAKINO, CHUNTAO CHANG, TAKESHI KUBOTA, AKIHISA INOUE; *Soft magnetic Fe-Co-B-P-C bulk metallic glasses without any glass-forming metal elements*; *Journal of Alloys and Compounds* 483 (2009) 616–619
- [27] CHUNTAO CHANG, CHUNLING QIN, AKIHIRO MAKINO, AKIHISA INOUE; *Enhancement of glass-forming ability of FeSiBP bulk glassy alloys with good soft-magnetic properties and high corrosion resistance*; *Journal of Alloys and Compounds* 533 (2012) 67–70

Elaborarea posterului – Diagrama Gantt

P. J. Gosling, Scientist's Guide to Poster Presentation, Springer US, 1999, 142 p.



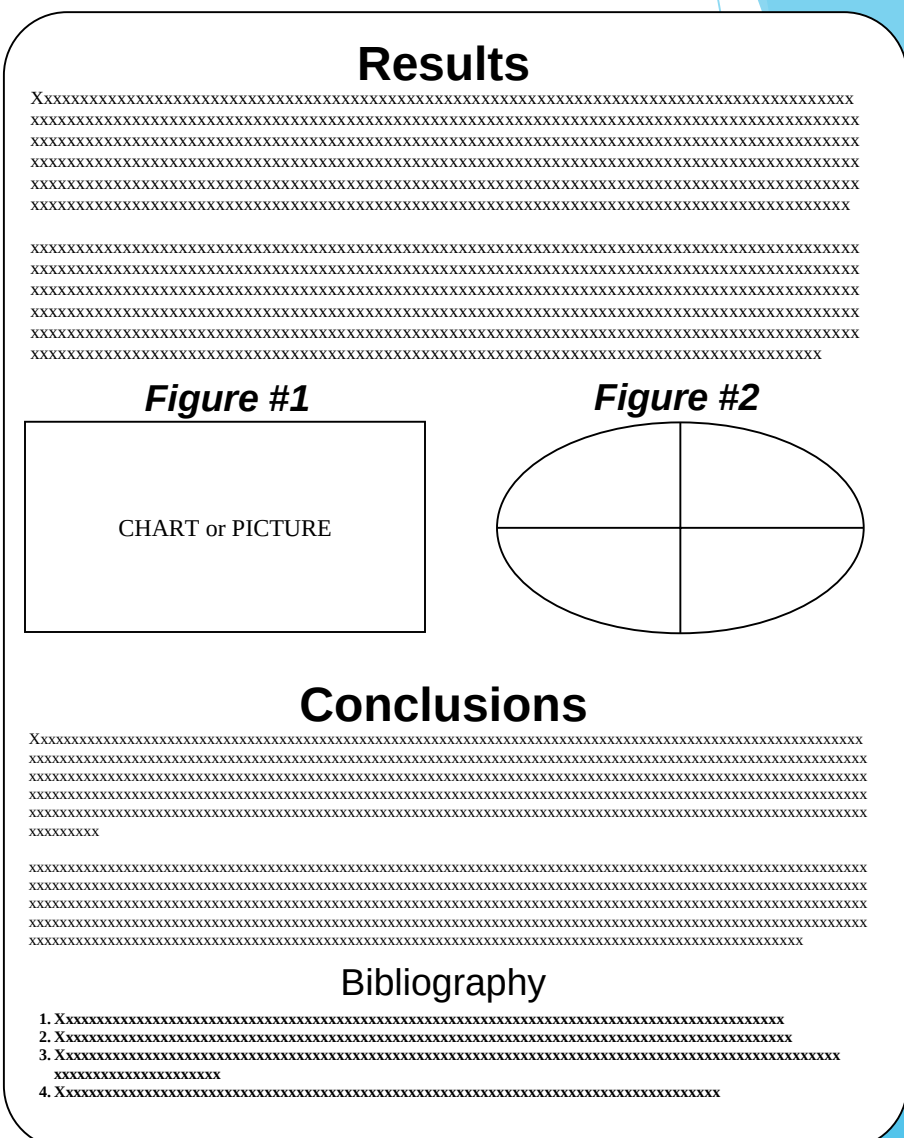
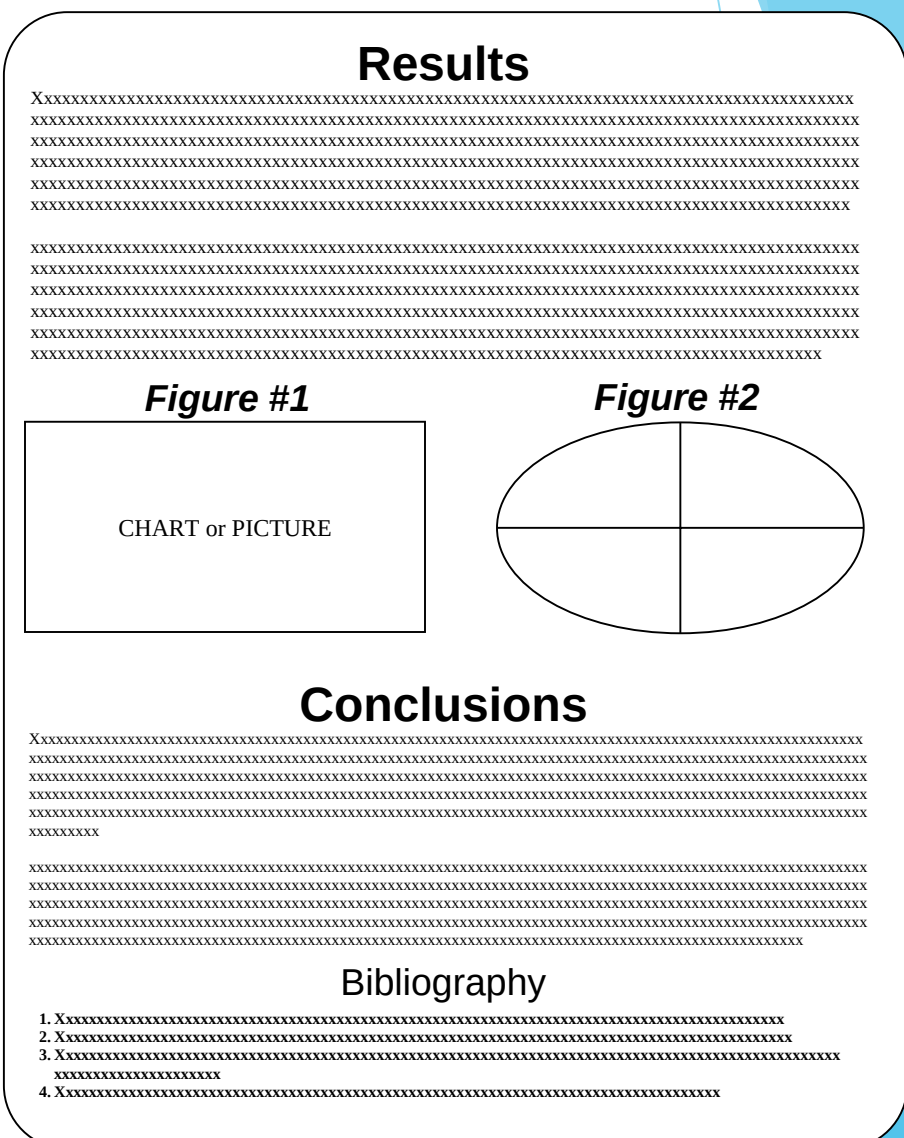
- Plagiat
- Drept de autor

Logo	Title of the Research Study PEOPLE WHO DID THE STUDY <i>UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH</i>	Logo
------	--	------

Logo	Title of the Research Study PEOPLE WHO DID THE STUDY <i>UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH</i>	Logo
------	--	------

Logo	Title of the Research Study PEOPLE WHO DID THE STUDY <i>UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH</i>	Logo
------	--	------

Logo	Title of the Research Study PEOPLE WHO DID THE STUDY <i>UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH</i>	Logo
------	--	------

[illegible][illegible][illegible][illegible][illegible][illegible]

- [illegible]

Logo

Logo

Title of the Research Study

PEOPLE WHO DID THE STUDY

UNIVERSITIES AND/OR HOSPITALS THEY ARE AFFILIATED WITH

Logo

Introduction

We hope you find this template useful! This one is set up to yield a bright, colorful, natural print.

We've put in the headings we usually use in these papers, you can copy and paste and change to your heart's content! We suggest you use large black text against a light background so that it is easy to read. Background color can be changed to better background-keep down there.

The boxes around the text will automatically fit the text you type, and if you click on the text, you can use the little handles that appear to stretch or expand the text boxes to whatever size you want. If you need just a little more space for your type, go to Format>Line Spacing and select 1.5 or 2.0 or just 80%.

The dotted lines through the center of the page will not print, they are for alignment. You can move these around by clicking and holding them, and a little box will tell you where they are on the page. Use them to get your pictures or text boxes aligned together.

How to bring things in from Excel and Word!

Excel: select the chart, hit edit copy, and then edit paste into PowerPoint. The chart can then be stretched to fit as required. If you need to edit parts of the chart, it can be ungrouped. [Click here](#) for more info on how to use the chart, which PowerPoint will not recognize if it is not from and then paste it separately. If you don't have the last version of our system, it is here to use the format that for scientific characters.

Word: select the text to be brought into PowerPoint, hit edit copy, then edit paste the text into a new or existing text box. You need to adjust. You can change the size, color, etc. in format text. We suggest you not put shadows on smaller text. Stick with Arial and Times New Roman fonts so your collaborators will have them.

Notes

We would suggest to be 72 or 100 dpi in their final print, or use a ratio of about 2 or 4 magnification of ungrouped, of the per square foot of image. For instance, a 100 photo that will be 10x10 in size on the final print should be scanned at 200 dpi.

We give for that you import of our copy image into PowerPoint. Generally, if you double click on an image to open it in Microsoft Photo Editor, and to tell you the image is too large, there is a size large for PowerPoint in hands too. We find that images 1200x1600 pixels or smaller work very well. Very large images may show on your screen but PowerPoint cannot print them.

Preview: To see your document in actual size, go to view>notes 100% Preview to be printed at 100% need to be viewed at 100%.

Feedback: If you have comments about how this template worked for you, email to info@magnumphoto.com.

We thank! Call us at 800-999-5550 if we can help in any way.

Methods

Figure #1

CHART or PICTURE

Results

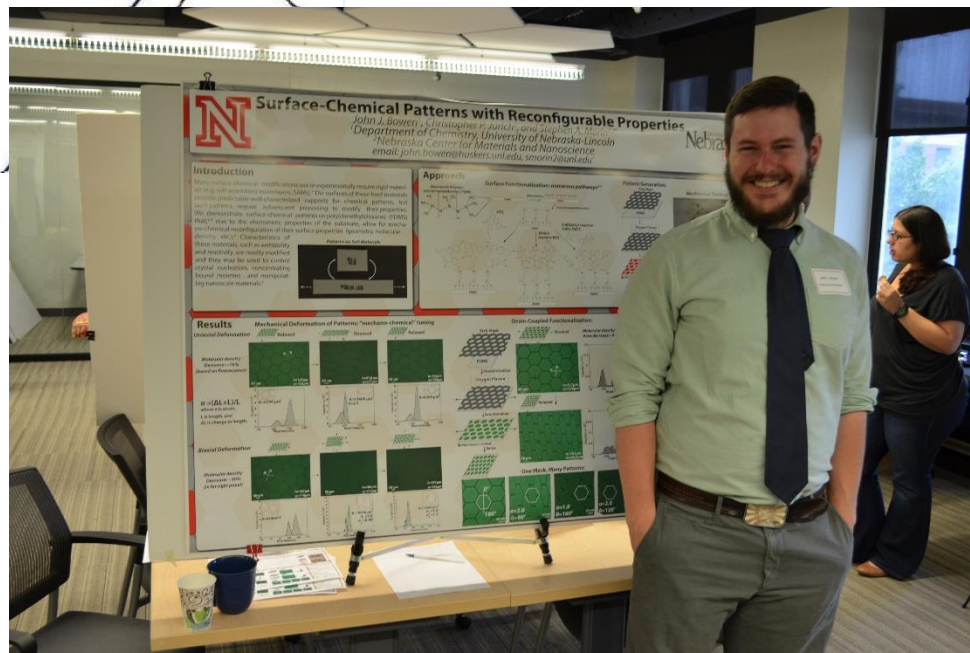
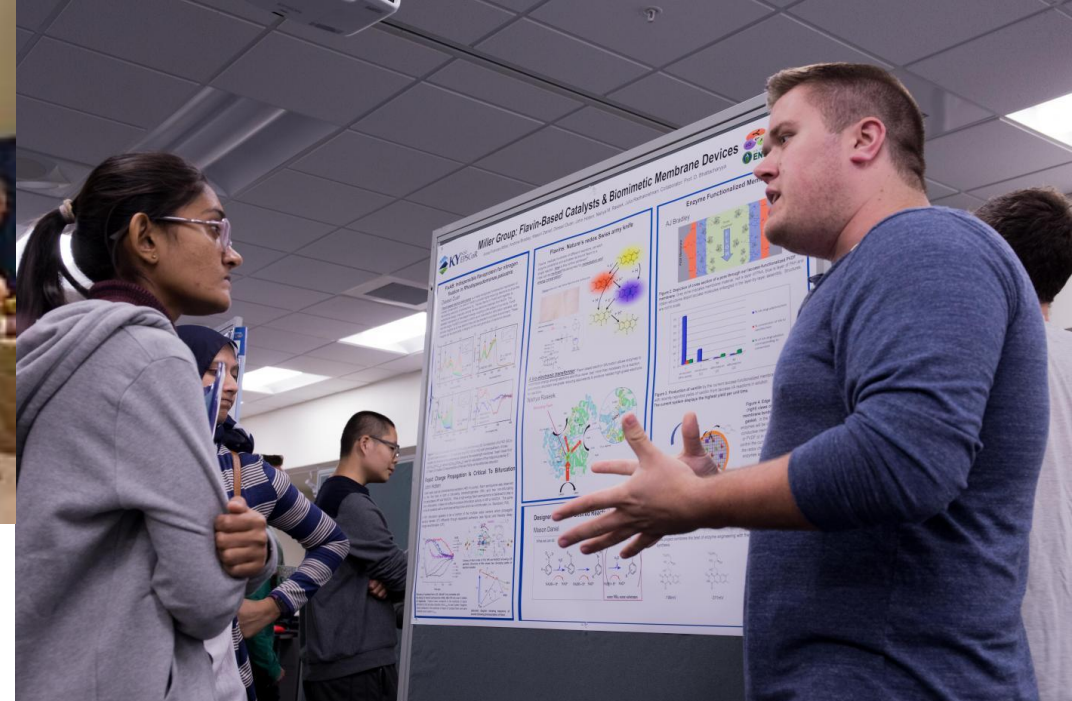
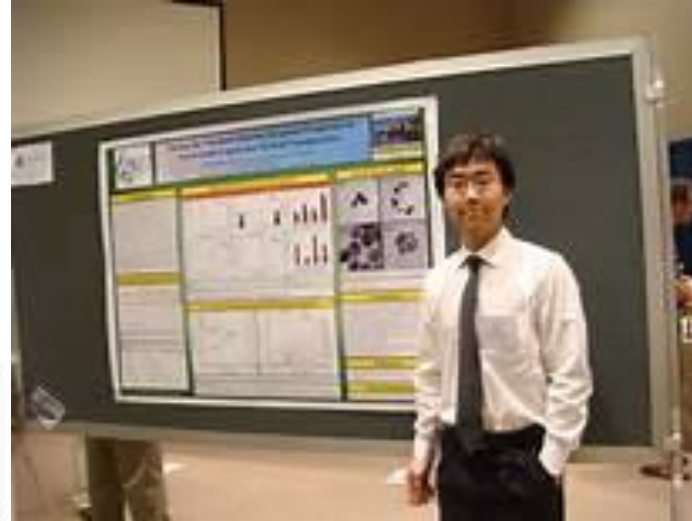
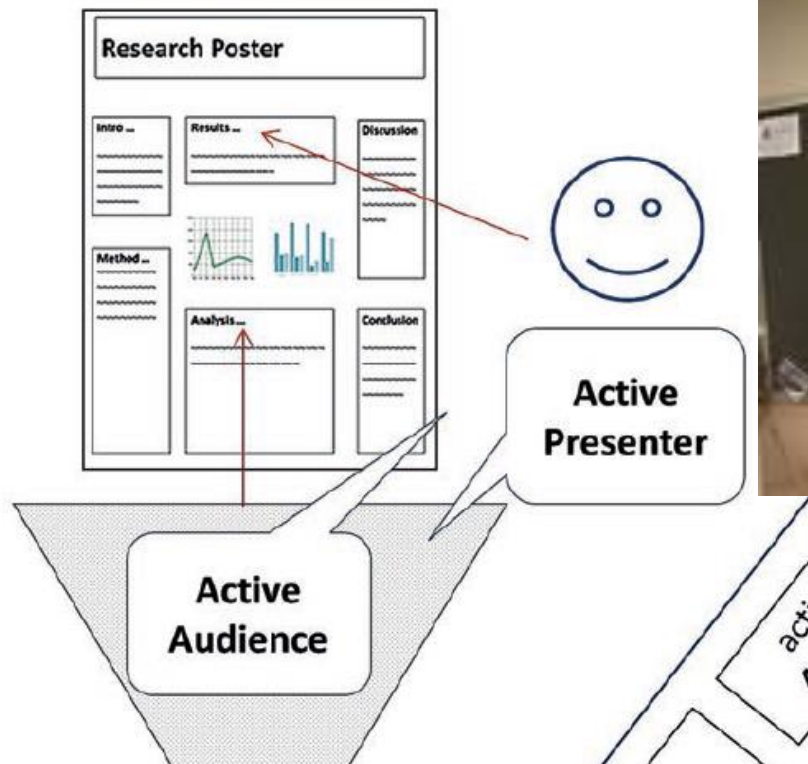
Figure #2

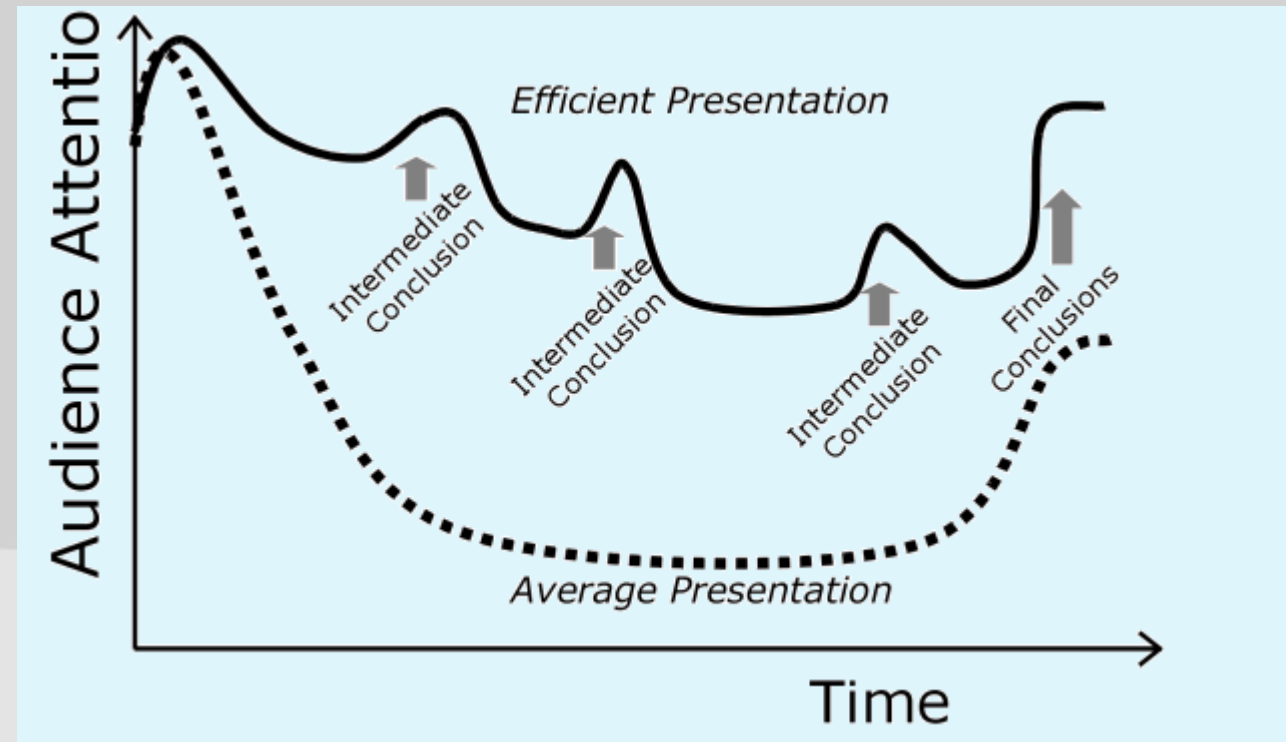
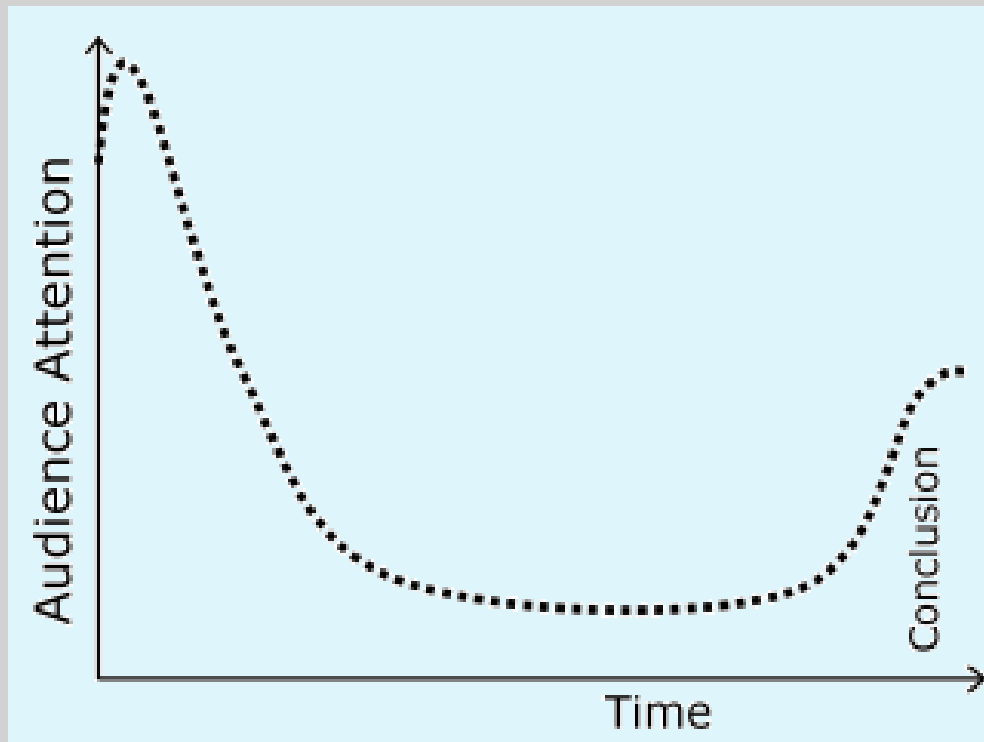
Conclusions

Bibliography

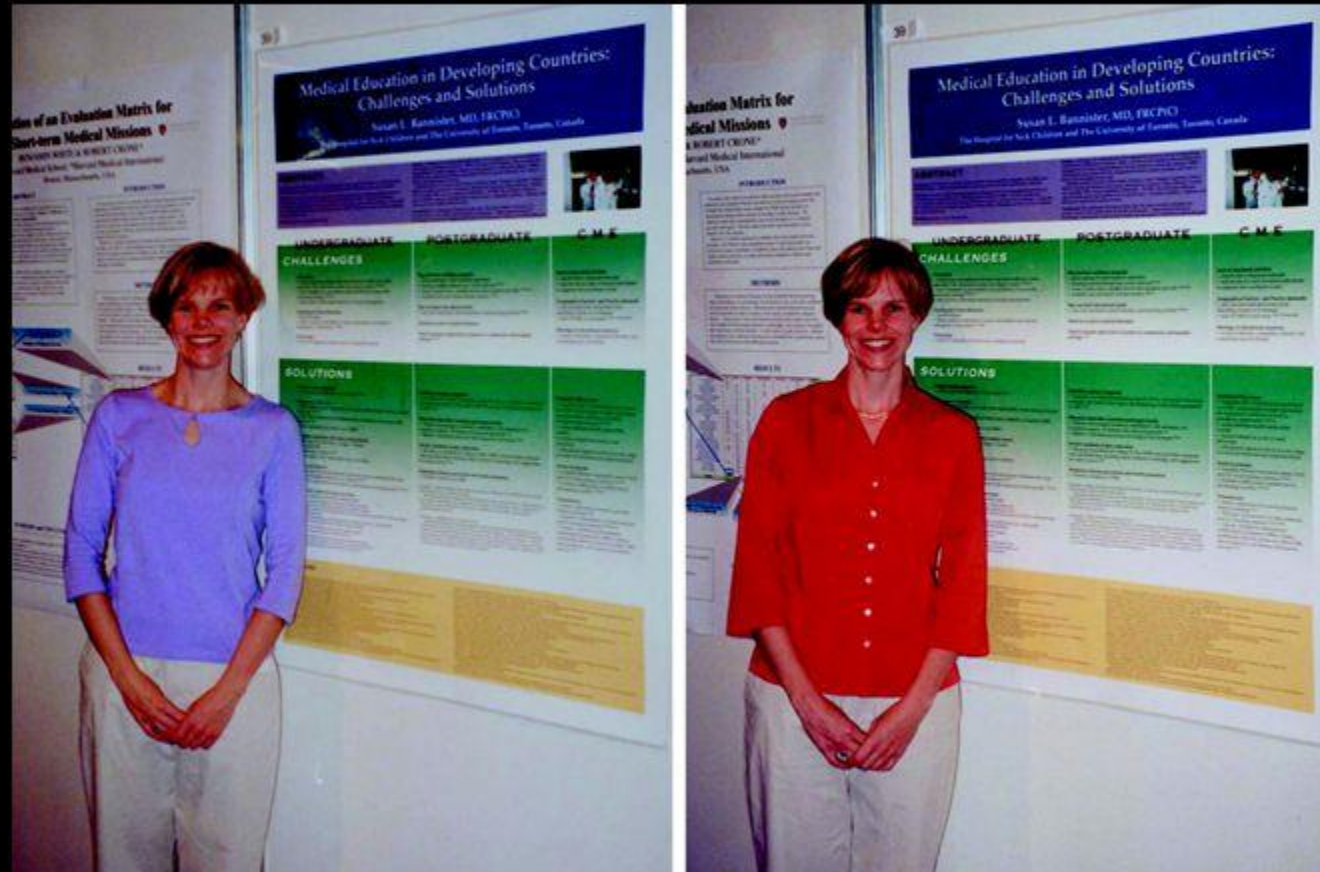
1. [Click here](#) for more info on how to use the chart, which PowerPoint will not recognize if it is not from and then paste it separately. If you don't have the last version of our system, it is here to use the format that for scientific characters.
2. [Click here](#) for more info on how to use the chart, which PowerPoint will not recognize if it is not from and then paste it separately. If you don't have the last version of our system, it is here to use the format that for scientific characters.
3. [Click here](#) for more info on how to use the chart, which PowerPoint will not recognize if it is not from and then paste it separately. If you don't have the last version of our system, it is here to use the format that for scientific characters.
4. [Click here](#) for more info on how to use the chart, which PowerPoint will not recognize if it is not from and then paste it separately. If you don't have the last version of our system, it is here to use the format that for scientific characters.

John's MagnumPhoto.com





Effect of Colour Coordination of Attire with Poster Presentation on Poster Popularity



Keegan, D. A. et al. CMAJ 2003;169:1291-1292

Fig. 1: Study presenter in lavender-coloured blouse (chosen to coordinate with poster colour) and in rust-coloured blouse (chosen to clash with poster)

CMAJ·JAMC

Synthesis of Cubic Au Nanoparticle Supports for Trichloroethene Remediation

Alison F. Takemura¹, Michael G. Buser², Ken N. Kowalewski³, and Prof. Michael S. Wong¹
¹Dept. of Chemical and Biomolecular Engineering, ²Dept. of Chemistry,
³Center for Biological and Environmental Nanotechnology, Rice University, Houston, TX

2. Motivation

- Trichloroethene (TCE): To better understand the effect of Au's crystalline structure on the catalytic mechanism
- Engineering: To improve the reaction rate

3. Cubic Au Nanoparticles

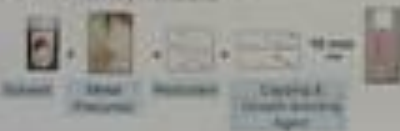
- Spherical NPs surface are composed of many crystallographic facets

- Important consideration for catalysis:
 - TCE needs only surface oxygen
 - Type of crystalline facets may affect rate

- Others have developed cubic Au NPs:
 - Many (111) facets exposed

- Replace spherical NPs with cubic ones

General Synthesis



4. Directed-Growth Mechanism



Proposed Shape Development

- Applies to Au, Pt, as well as Ag
- The kinetic energy goes into the corners

5. Cubic Au Nanoparticle Syntheses & Results

Method	Gold Precursor	Reducant	Capping Agent	Temp.	solvent
Seed	AuCl ₃	NaBH ₄	None	25°C	Water
Seed	AuCl ₃	NaBH ₄	None	25°C	Water
Seed	AuCl ₃	NaBH ₄	None	25°C	Water
Seed	AuCl ₃	NaBH ₄	None	25°C	Water
Seed	AuCl ₃	NaBH ₄	None	25°C	Water



- Features:
 - Commagation
 - Size & Shape Polydispersity
- Increasing yield:
 - Photoreduction
 - Difficult to reproduce
- Reaction temperature:
 - Agitation needed
 - NPs do not precipitate

6. Discussion

- Reaction Time: Cubic method takes 10 min to 1 hr
- Why?
 1. CTA is required to produce 110 nm cubic particles
 2. Polydispersity: without CTA, particles are 10-100 nm (CTA) gives 100 nm
 3. Size Distribution of seeds

7. Conclusions

- Plan:
 - Taught to synthesize cubic Au NPs
 - Control exposed facets (111)
 - Observe effect on catalytic rate
 - Observed rapid catalysis with red method (Au, Pt, Ag) addition
 - Synthesis at room temperature
- Future efforts:
 - Alternative reagents
 - Solubility in water
 - Yield
 - Test Au on other surfaces
 - Measure TCE rate
 - Test in water



Nuclear Nonproliferation Initiative Strategic Plan

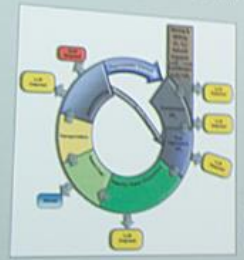
VISION: to be a recognized technical and program leader providing nuclear nonproliferation services to the nation. In so doing, the Laboratory will support the nation's goals for global security and stability, and will further international acceptance of advanced nuclear energy systems.

Category	Item 1	Item 2	Item 3
Category 1	Item 1.1	Item 1.2	Item 1.3
Category 2	Item 2.1	Item 2.2	Item 2.3
Category 3	Item 3.1	Item 3.2	Item 3.3
Category 4	Item 4.1	Item 4.2	Item 4.3

Step 1 of a Strategic Plan is to create and set a Vision of the Near Future and what the company wants to strive for. The Nuclear Nonproliferation Initiative (NNI) Vision above is an example.

Step 2 is to survey the market "landscape". The table above is an element of the nonproliferation "landscape". The three regimes of Nonproliferation in the table are part of a synopsis of the nonproliferation sector. An outline of the sector in broad market details gives a general framework to explain the boundaries of the Plan, then follows a detailed analysis considering the boundaries of competitors. This includes a breakdown of the customers' needs and spending habits. For instance, the pie graph on the right explains the Nonproliferation Budget for DOE. Next competitors' capabilities, financial resources, and critical infrastructure are assessed. Examples from the NNI Plan are pictured on the right and include a visual illustrating the competitors' areas of specialization and a percentage pie graph showing market share.

Step 3 is to conduct an organizational assessment. This includes an evaluation of the business's personnel, infrastructure, financial status, and market infiltration. For example, during our assessment INL's involvement in nearly all the fuel cycle steps pictured below was taken into account.



Step 4 is to identify Objectives, outline Strategies, and develop ways to implement these strategies in order to accomplish the Vision all while considering the business vision, market landscape, and organization assessment. The NNI Objectives are below.

OBJECTIVES: to identify shortfalls within the current nuclear nonproliferation market; to build a solid and recognized base of sustainable research and business; to enhance complementary research; and to promote, develop and maintain relationships.

Stabilizing Sensitive Oxidative DNA Lesions

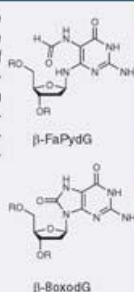
The Two Main Oxidative DNA Lesions 8-oxodG
And FaPydG Exhibit Strongly Different Pairing Properties



Matthias Ober, Thomas Carell
Philipps-Universität Marburg
Fachbereich Chemie, Hans-Meerwein-Str.,
35032 Marburg, Germany
m.ober@gmx.de, carell@staff.uni-marburg.de

Introduction

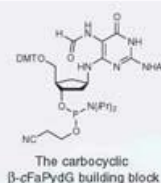
Decay of DNA due to oxidation is believed to be the main cause for the development of cancer and the pathogenesis of aging. The formamidopyrimidine of 2'-deoxyguanosine (β -FaPydG) and 7,8-dihydro-8-oxo-2'-deoxyguanosine (β -8-oxodG) are the two main DNA lesions induced by oxidative stress. As a monomer, β -FaPydG readily anomerizes in solution, impeding its stereospecific incorporation into oligonucleotides during machine assisted DNA synthesis.



Scheme 1: Anomerization equilibrium of FaPydG.

Project Goals

→ Synthesize a β -FaPydG building block which is stable to anomerization and strictly bio-isosteric. The carbocyclic analogue of β -FaPydG (β -cFaPydG) fulfills both requirements.



→ Incorporate β -cFaPydG into oligonucleotides by automated DNA synthesis.

→ Determine UV-melting points of DNA duplexes containing β -cFaPydG. Compare with the melting behavior of double strands containing 8-oxodG and unmodified dG.

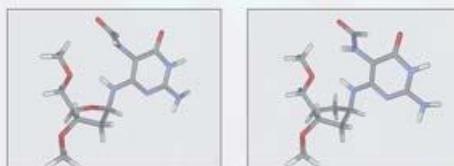


Figure 1: Geometries of FaPydG (left) and cFaPydG (right).

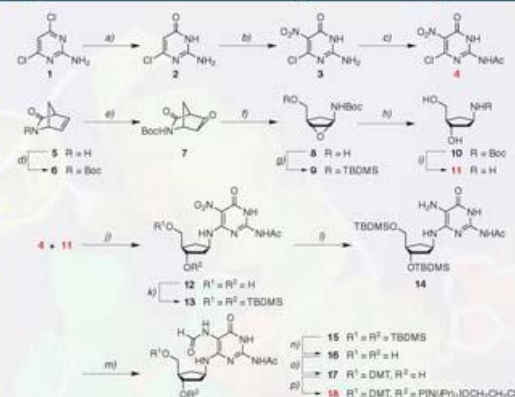
(Structures were obtained by B3LYP/6-31G* density functional calculation with geometry optimization using Gaussian 98 Rev. A.9)

References and Acknowledgements

- [1] M. Ober, U. Linne, J. Gierlich, T. Carell, *Angew. Chem. Int. Ed.*, in press.
 - [2] L. T. Burgdorf, T. Carell, *Chem. Eur. J.* **2002**, *8*, 293.
 - [3] B. M. Dominguez, P. M. Cullis, *Tetrahedron Lett.* **1999**, *40*, 5783.
 - [4] C. J. Burrows, J. G. Muller, *Chem. Rev.* **1998**, *98*, 1109.
- The background picture was generated from 1EBM.pdb, "Crystal structure of the human 8-oxoguanine glycosylase (hOgg1) bound to a substrate oligonucleotide", S. D. Bruner, D. P. Norman, G. L. Verdine, *Nature*, **2000**, *403*, 859.

We thank the Boehringer Ingelheim Fonds for a Ph. D. Fellowship to M.O. The work was generously supported by the Volkswagenstiftung, the Fonds der Chemischen Industrie and the Deutsche Forschungsgemeinschaft. Part of the analytical work was performed by the NMR and MS facilities and by Dr. U. Linne, Universität Marburg, Germany.

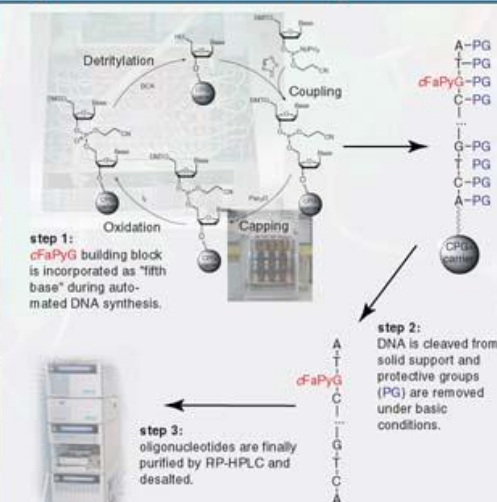
Synthesis of the cFaPydG building block



a) 1. NaOH, 100 °C, 1 h, 99%; 2. HNO₂/NO₂, H₂SO₄, 0 °C, 15 min, 85%; 3. Ac₂O, H₂SO₄, 90 °C, 60 min, 80%; 4. Boc₂O, DMAP, THF, 25 °C, 85%; 5. mCPBA, CH₂Cl₂, 25 °C, 20 h, 72%; 6. NaBH₄, MeOH, 0 °C, 0.5 h, 92%; 7. TBDMSCl, imidazole, DMF, 25 °C, 3 h, 90%; 8. Red-Al[®], toluene, 25 °C, 3 h, 93%; 9. H₂O, 100 °C, 14 h, 95%; 10. DIPEA, DMF, 70 °C, 90 min, 72%; 11. TBDMSCl, imidazole, DMF, 25 °C, 3 h, 88%; 12. Pd/C, H₂, EtOH, 25 °C, 3 h, 95%; 13. HCOOH, DIPEA, EDG, DMF, 25 °C, 48 h, 65% for two steps; 14. HF-pyridine, pyridine, EtOAc, 25 °C, 20 h, 97%; 15. DMTCL, pyridine, DMAP, 0-20 °C, 3 h, 62%; 16. DIPEA, CIPN(P₂)₂CH₂CH₂CH₂N, THF, 0 °C, 30 min, 96%.

Scheme 2: Synthesis of the cFaPydG lesion analogue phosphoramidite 18.

Synthesis of modified oligonucleotides



Scheme 3: Synthesis and purification of DNA oligonucleotides.

Analysis

→ The oligonucleotides had, after preparative HPLC purification, a purity of >98%.

→ A HPLC/MS/MS experiment of a total digest of the DNA proofed the incorporation of cFaPydG. The fragmentation patterns of the five compounds separated during chromatography were identical to the monomeric and fully deprotected nucleotides dA, dT, dC, dG and cFaPydG.

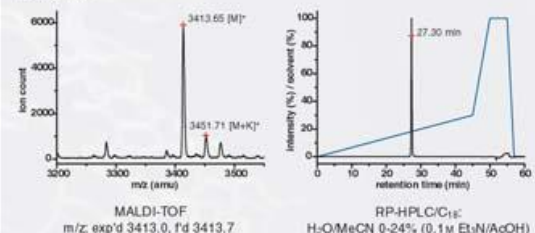


Figure 2: Analytical data of the oligonucleotide 5'-d(GCGATXTAGCG)-3'; X=cFaPydG.

Results

→ Three oligonucleotides containing cFaPydG, 8oxodG and dG within the same sequence have been synthesized. These strands were hybridized with their four counterstrands containing the four canonical bases as counterbases.

→ All mismatches strongly destabilized the duplex by at least 14 °C. The two lesions generally destabilized the strand. 8-oxodG paired relatively well with dC and dA.

5'-d(GCGATXTAGCG)-3'
3'-d(CGCTATACGC)-5'

	X = dG	X = 8oxodG	X = cFaPydG
Y = dA	33.9	46.0	16.1 (54.9)
Y = dC	51.8	45.6	36.9
Y = dG	37.9	31.4	16.1 (54.9)
Y = dT	35.8	36.7	45.0

Table 1: UV-melting points of examined DNA duplexes.

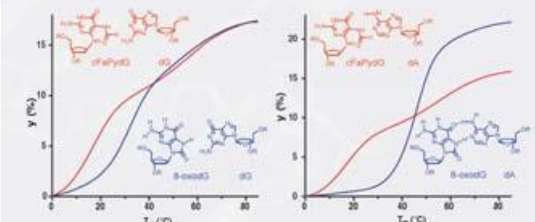


Figure 3: Melting curves of cFaPydG and 8-oxodG in complex with purine bases.

→ We have found an unusual biphasic melting behavior of the cFaPydG lesion, if paired with a purine base. The melting point of the cFaPydG:C duplex was considerably decreased. Instead, we observed the highest melting point for the cFaPydG:T base pair.



Importance of Cell-Cell Communication on VIC Activation

Sarah Recktenwall-Work, Darshita Shah, Kristi Anseth

BSI BIOLOGICAL SCIENCES INITIATIVE

MOTIVATION

Heart valve surgery is performed each year in the United States. Current methods of heart valve replacement are suboptimal. An ideal heart valve would be a biological tissue that can grow and remodel. Through tissue engineering, this ideal may be realized. This ideal may have the potential to serve as an ideal heart valve replacement.

Methods

Future Option



Heart valve replacement is a major surgical procedure. The current method of replacement is suboptimal. A heart valve replacement procedure is needed to replace the heart valve.

Heart valve replacement is a major surgical procedure. The current method of replacement is suboptimal. A heart valve replacement procedure is needed to replace the heart valve.

BACKGROUND

Cell-cell communication has been shown to be critical to the development of different tissues, including heart valves. Communication is made possible through gap junctions, which are made of connexin (Cx) proteins. VICs, one cell of interest, are cells that communicate through gap junctions.

VIC Expression of Connexin-43 with Varying Cell Seeding Density

Immunostaining

- Confirms the presence of Connexin 43 (Cx43) localized in areas around cells
- Shows increased Cx43 expression with higher cell seeding densities

Western Blot

- Seeding densities did not show a statistical difference between conditions
- Needs to be repeated to reduce error



Figure 1: Immunostaining for Cx43 at 25000 cells/cm2 seeding density. Green is Cx43 and blue is DAPI stained cell nuclei.



Figure 2: Immunostaining for Cx43 at 50000 cells/cm2 seeding density. Green is Cx43 and blue is DAPI stained cell nuclei.



Figure 3: VIC expression of Cx43 with varying cell seeding density. VIC expression of Cx43 was measured using immunostaining. VIC expression of Cx43 was measured using immunostaining.

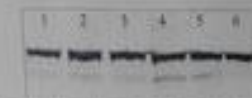


Figure 4: Western blot for Cx43 and tubulin. Lane 1: Cx43 and tubulin. Lane 2: Cx43 and tubulin. Lane 3: Cx43 and tubulin. Lane 4: Cx43 and tubulin. Lane 5: Cx43 and tubulin.

The Importance of Communication on VIC Activation

Quantitative Immunostaining

- Cells exposed to the communication enhance inhibitor chloride (LUCY) and the communication inhibitor heparin
- Cells exposed to heparin show similar morphology to control cells
- Control cells are elongated and are more confluent than heparin cells



Figure 5: VIC expression of Cx43 with varying cell seeding density. VIC expression of Cx43 was measured using immunostaining. VIC expression of Cx43 was measured using immunostaining.



SUMMARY

Current results show that VICs express Cx43, suggesting that they may communicate through gap junctions. When modulators are added to increase or decrease communication, there is an increase in Cx43 expression. The correlation between cell communication and VIC activation needs to be further investigated through future work.

FUTURE WORK

- Use immunostaining of fluorescent dyes to further investigate communication among cells seeded at varying densities in the presence of different communication modulators
- Investigate the direct effect of communication on Cx43 expression using immunostaining and Western blot techniques
- Repeat immunostaining and Western blot techniques to check the validity of current results and to investigate changes of Cx43 expression with varying seeding densities and when cells are treated with communication modulators
- Repeat quantitative immunostaining experiments to investigate previous results and further investigate the role of cell-cell communication in VIC activation

ACKNOWLEDGMENTS

Biological Sciences Initiative (BSI) Intern
Harvard Medical School
Mason/Cooper
Mason/Cooper

REFERENCES

1. Shih, P., Liu, J. *Wound Repair and Regeneration* 19(1) (2011).
2. Meyer, K., Davis, A., Sargent, G., Mackay, R. *Experimental and Molecular Pathology* 72 (2011).
3. Li, G., Whistler, P., Yin, M., Kwon, B., *Proc Cardiovasc Pathology* 11 (18-22) (2012).

ABSTRACT

Network-on-chip has been proposed as an alternative to bus-based system to achieve high performance and scalability. The topology of on-chip interconnect plays a crucial role in System on chip performance, energy, and area requirements

An on-chip interconnects architecture following WK-recursive topology is proposed. WK-recursive interconnect is analyzed and compared with two networks on chip structures: 2D Mesh and Spidergon. Comparison results for performance metrics, such as the throughput, the communication load, and latency are reported. Initial results show that WK-Recursive on-chip interconnect generally outperforms the other architectures in main performance metrics

WK-recursive attractive properties

A high degree of regularity, symmetry, efficient communication, and ease of extendibility that suit network on-chip infrastructures

MOTIVATION

A new architecture, based on recursive networks, is investigated. WK-recursive network was initially proposed in [2] as a network for VLSI implementation. Since this topology has many attractive properties, such as a high degree of regularity, symmetry and an efficient communication, WK-Recursive networks have also received considerable attention in parallel computing community [3]. An interesting property that makes this structure most suitable for NoC architectures is the ability to expand the network to any arbitrary size level without reconfiguring the edges. In this paper, WK-recursive network is compared with the most commonly used topologies in NoC: 2D regular mesh and Spidergon networks. Simulation results are reported for different performance metrics.

METHODOLGY AND ANALYSIS

Performance metrics are explored for the considered topologies. A simulator developed in [4] is upgraded and modified to suit different topologies and their related parameters [5]. Recently, NoC architectures have been studied and compared based on different performance metrics such as message delay, throughput and network load [1, 5, 6]. In our study, topologies of 16-nodes of 2D mesh, Spidergon, and WK(4,2) are constructed (see figure 1). WK-Recursive network with amplitude W and level L, is denoted by a WK(W,L) [3].

To analyze and compare the above interconnect topologies, the following performance metrics are considered: latency, flits loss, aggregated throughput, and communication load [4, 5]. The considered values of the injection rate are 70, 100, 130, 160, and 190Mbps. The size of the buffer is fixed to 32 flits. Figure 2 compares the latency of the three topologies when a heavy traffic is applied. In this figure, 2D mesh and Spidergon show higher maximum latency compared to the WK-recursive topology. Figure 3 shows the variation of aggregated throughput under different injection rates. WK-recursive interconnect outperforms the rest of the topologies when the injection rate is less than 160Mbps because of lower loss rate as depicted in figure 4. Figure 5 shows that WK outperforms the rest of topologies in the communication load.

WK-recursive Network: An overview

The communication between processors was the key issue to many parallel algorithms. It was considered as one of the most important issues for interconnection networks. It is known that the topology plays a crucial role to address this issue. Several topologies, such as Mesh and 2D torus have been proposed in the field of parallel computing and adopted in NoC research [5]. Recently, an attractive topology called WK-recursive network has received considerable attention in parallel community due to its many favorable properties, such as high degree of regularity, symmetry and efficient communication, scalability, and ease of extendibility [4]. This topology has been initially proposed for VLSI implementations [1] and later adapted as a network topology for parallel computing [2, 3, 4].

One of the interesting properties of this structure is its ease of expandability; the WK-recursive network can be constructed hierarchically by grouping basic modules. More precisely, a WK-recursive network with amplitude W and level L, denoted by a WK(W,L), can be recursively constructed. A WK(W, 0) is a vertex with W free edges. A WK(W, 1) is a W-vertex complete graph that is denoted by a KW. Each vertex has one free edge and W-1 edges that are used for connecting to the other vertices. A WK(W, H) consists of W copies of WK(W, H-1) as supervertices and the W supervertices are connected as a KW, where. By induction, WK(W,L) has WL vertices and W free edges. Consequently, for any specified degree W, WK-Recursive networks can be expanded to an arbitrary level L without reconfiguring the edges. The structures of a WK(4, 0), a WK(4, 1), and WK(4, 2) are depicted in figure to the right.

RESULTS

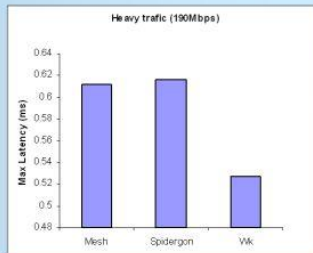


Figure 2. Maximum latency for the three topologies.

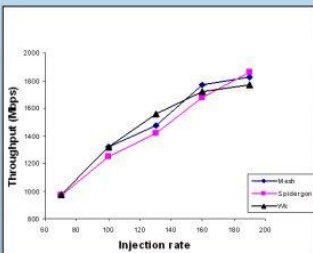


Figure 3. Variation of throughput vs. injection rate

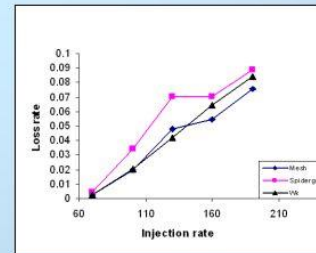


Figure 4. Variation of loss rate vs. injection rate

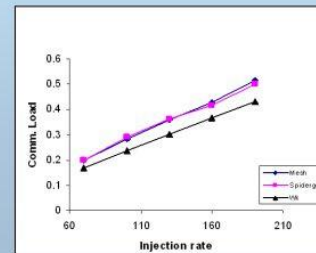
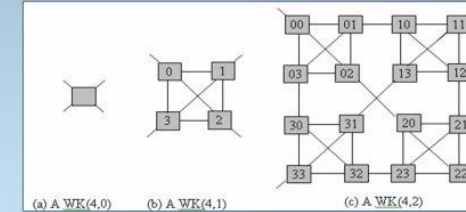


Figure 5. Variation of communication load vs. injection rate



The structures of (a) WK(4, 0), (b) WK(4, 1), and (c) WK(4, 2)

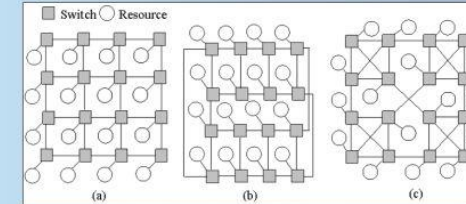


Figure 1. NoC Topologies on the chip layout: (a) 2D Mesh, (b) Spidergon, (c) WK

CONCLUSIONS

We proposed a NoC interconnect based on the WK recursive network. A simulation study aimed at exploring this on-chip interconnect for NoC is conducted. The study compares this topology with two NoC architectures: 2D regular mesh and Spidergon. Selected configurations of these architectures have been constructed and simulated to compare main performance metrics such as packet losses, throughput, message delay, and network load. WK-recursive interconnect generally outperforms Mesh and Spidergon topologies because of its regular and stable behavior at the nodes' level, since it has lower latency and lower communication load. However, when heavy traffic is applied a slight increase in drop probability is appearing. Other important metrics, such as energy consumption and area requirements, is an ongoing work.

REFERENCES

- [1] P. P. Pande, C. Grecu, M. Jones, A. Ivanov, and R. Saleh, "Performance Evaluation and Design Tradeoffs for Network-on-Chip Interconnect Architectures", IEEE Transaction on Computer, Vol. 54, No. 8, 2005, pp.1025-1040.
- [2] M. Coppola, R. Locatelli, G. Maruccia, L. Pieralisi, and A. Scandarra, "Spidergon: a novel on-chip communication network", Proceedings of International Symposium on Systems-on-Chip, 2004.
- [3] F. Karim, A. Nguyen, and S. Dey, "An Interconnection Architecture for Networking Systems on Chip", IEEE Microprocessors, 2002, 22(5): pp. 36-45.
- [4] G. D. Vecchia and C. Sanges, "A Recursively Scalable Network: VLSI Implementation", Future Generation Computing Systems, 1988, 4(3), pp. 235-243.
- [5] A. Mahabady, H. T. Moutafah, and N. N. Hanna, "Topological properties of WK-recursive networks", Proceeding of Second IEEE Workshop on Future Trends of Distributed Computing Systems, 1990, pp. 374-380.
- [6] Y. R. Sim, S. Kumar, and A. Jantsch, "Simulation and Evaluation of a Network on Chip Architecture Using ns2", In Proceedings of the IEEE NoC Conference, 2002.
- [7] S. Suboh, M. Bakhouya, S. Lopez-Buado, and T. El-Ghazawi, "Simulation-based Approach for Evaluating On-Chip Interconnect Architectures", Proceeding of SPL 2008, to appear.
- [8] L. Bononi and N. Concer, "Simulation and Analysis of Network on Chip Architectures: Ring, Spidergon, and 2D Mesh", Proceedings of DATE'06, 2006.

Site Characterization Projects for Contaminant Hydrogeology



Jean M. Bahr, University of Wisconsin - Madison

Motivations for the project

- Synthesis of geologic, hydrologic and contaminant data
- Examples of data available for actual sites
- Data uncertainty
- Data gaps
- Multiple and differing interpretations

Background Information Provided to Students

• History of suspected source and/or detected plume
Chips'N Dips (CND) Corporation has been attempting to develop silicon wafers as a snack treat. Unfortunately, during the early stages of product development and manufacturing, housekeeping operations at the plant were rather careless and a number of TCE spills occurred. By the time a groundwater plume was discovered in 1983, it had moved beyond the CND property boundary.

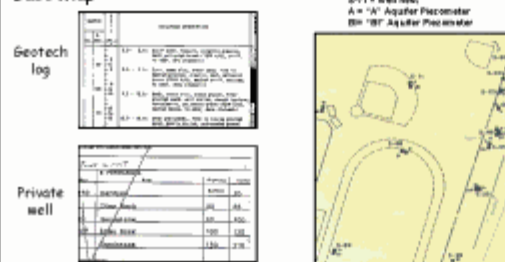
• Critical questions to be answered by student "consultants"
It is now early 2004 and you have been called in as a consultant to assess the effectiveness of the existing remedial measures at the site and to recommend additional measures if necessary.

Regional geologic and hydrogeologic setting



Data Set for Student Interpretation

- Geologic/geotechnical boring logs from monitoring wells (nested if possible) and nearby private or municipal wells
- Base Map



Other Essential Data

- Water level data (from multiple years or seasons if possible)
- Contaminant concentration data (from sampling rounds at similar times as water levels)

Hydrol. Chemical

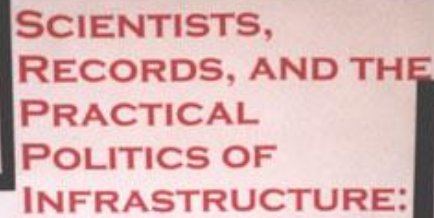
Table 2 - Water level data: 1998 and 2000 data

Well No.	Date	Time	Depth to Groundwater (ft. bgs)	Water Surface Elev. (ft. bgs)	Depth to Groundwater (ft. bgs)	Water Surface Elev. (ft. bgs)
10-1	08/20/98	10:00	10.0	10.0	10.0	10.0
10-2	08/20/98	10:00	10.0	10.0	10.0	10.0
10-3	08/20/98	10:00	10.0	10.0	10.0	10.0
10-4	08/20/98	10:00	10.0	10.0	10.0	10.0
10-5	08/20/98	10:00	10.0	10.0	10.0	10.0
10-6	08/20/98	10:00	10.0	10.0	10.0	10.0
10-7	08/20/98	10:00	10.0	10.0	10.0	10.0
10-8	08/20/98	10:00	10.0	10.0	10.0	10.0
10-9	08/20/98	10:00	10.0	10.0	10.0	10.0
10-10	08/20/98	10:00	10.0	10.0	10.0	10.0
10-11	08/20/98	10:00	10.0	10.0	10.0	10.0
10-12	08/20/98	10:00	10.0	10.0	10.0	10.0
10-13	08/20/98	10:00	10.0	10.0	10.0	10.0
10-14	08/20/98	10:00	10.0	10.0	10.0	10.0
10-15	08/20/98	10:00	10.0	10.0	10.0	10.0
10-16	08/20/98	10:00	10.0	10.0	10.0	10.0
10-17	08/20/98	10:00	10.0	10.0	10.0	10.0
10-18	08/20/98	10:00	10.0	10.0	10.0	10.0
10-19	08/20/98	10:00	10.0	10.0	10.0	10.0
10-20	08/20/98	10:00	10.0	10.0	10.0	10.0
10-21	08/20/98	10:00	10.0	10.0	10.0	10.0
10-22	08/20/98	10:00	10.0	10.0	10.0	10.0
10-23	08/20/98	10:00	10.0	10.0	10.0	10.0
10-24	08/20/98	10:00	10.0	10.0	10.0	10.0
10-25	08/20/98	10:00	10.0	10.0	10.0	10.0
10-26	08/20/98	10:00	10.0	10.0	10.0	10.0
10-27	08/20/98	10:00	10.0	10.0	10.0	10.0
10-28	08/20/98	10:00	10.0	10.0	10.0	10.0
10-29	08/20/98	10:00	10.0	10.0	10.0	10.0
10-30	08/20/98	10:00	10.0	10.0	10.0	10.0
10-31	08/20/98	10:00	10.0	10.0	10.0	10.0
10-32	08/20/98	10:00	10.0	10.0	10.0	10.0
10-33	08/20/98	10:00	10.0	10.0	10.0	10.0
10-34	08/20/98	10:00	10.0	10.0	10.0	10.0
10-35	08/20/98	10:00	10.0	10.0	10.0	10.0
10-36	08/20/98	10:00	10.0	10.0	10.0	10.0
10-37	08/20/98	10:00	10.0	10.0	10.0	10.0
10-38	08/20/98	10:00	10.0	10.0	10.0	10.0
10-39	08/20/98	10:00	10.0	10.0	10.0	10.0
10-40	08/20/98	10:00	10.0	10.0	10.0	10.0
10-41	08/20/98	10:00	10.0	10.0	10.0	10.0
10-42	08/20/98	10:00	10.0	10.0	10.0	10.0
10-43	08/20/98	10:00	10.0	10.0	10.0	10.0
10-44	08/20/98	10:00	10.0	10.0	10.0	10.0
10-45	08/20/98	10:00	10.0	10.0	10.0	10.0
10-46	08/20/98	10:00	10.0	10.0	10.0	10.0
10-47	08/20/98	10:00	10.0	10.0	10.0	10.0
10-48	08/20/98	10:00	10.0	10.0	10.0	10.0
10-49	08/20/98	10:00	10.0	10.0	10.0	10.0
10-50	08/20/98	10:00	10.0	10.0	10.0	10.0
10-51	08/20/98	10:00	10.0	10.0	10.0	10.0
10-52	08/20/98	10:00	10.0	10.0	10.0	10.0
10-53	08/20/98	10:00	10.0	10.0	10.0	10.0
10-54	08/20/98	10:00	10.0	10.0	10.0	10.0
10-55	08/20/98	10:00	10.0	10.0	10.0	10.0
10-56	08/20/98	10:00	10.0	10.0	10.0	10.0
10-57	08/20/98	10:00	10.0	10.0	10.0	10.0
10-58	08/20/98	10:00	10.0	10.0	10.0	10.0
10-59	08/20/98	10:00	10.0	10.0	10.0	10.0
10-60	08/20/98	10:00	10.0	10.0	10.0	10.0
10-61	08/20/98	10:00	10.0	10.0	10.0	10.0
10-62	08/20/98	10:00	10.0	10.0	10.0	10.0
10-63	08/20/98	10:00	10.0	10.0	10.0	10.0
10-64	08/20/98	10:00	10.0	10.0	10.0	10.0
10-65	08/20/98	10:00	10.0	10.0	10.0	10.0
10-66	08/20/98	10:00	10.0	10.0	10.0	10.0
10-67	08/20/98	10:00	10.0	10.0	10.0	10.0
10-68	08/20/98	10:00	10.0	10.0	10.0	10.0
10-69	08/20/98	10:00	10.0	10.0	10.0	10.0
10-70	08/20/98	10:00	10.0	10.0	10.0	10.0
10-71	08/20/98	10:00	10.0	10.0	10.0	10.0
10-72	08/20/98	10:00	10.0	10.0	10.0	10.0
10-73	08/20/98	10:00	10.0	10.0	10.0	10.0
10-74	08/20/98	10:00	10.0	10.0	10.0	10.0
10-75	08/20/98	10:00	10.0	10.0	10.0	10.0
10-76	08/20/98	10:00	10.0	10.0	10.0	10.0
10-77	08/20/98	10:00	10.0	10.0	10.0	10.0
10-78	08/20/98	10:00	10.0	10.0	10.0	10.0
10-79	08/20/98	10:00	10.0	10.0	10.0	10.0
10-80	08/20/98	10:00	10.0	10.0	10.0	10.0
10-81	08/20/98	10:00	10.0	10.0	10.0	10.0
10-82	08/20/98	10:00	10.0	10.0	10.0	10.0
10-83	08/20/98	10:00	10.0	10.0	10.0	10.0
10-84	08/20/98	10:00	10.0	10.0	10.0	10.0
10-85	08/20/98	10:00	10.0	10.0	10.0	10.0
10-86	08/20/98	10:00	10.0	10.0	10.0	10.0
10-87	08/20/98	10:00	10.0	10.0	10.0	10.0
10-88	08/20/98	10:00	10.0	10.0	10.0	10.0
10-89	08/20/98	10:00	10.0	10.0	10.0	10.0
10-90	08/20/98	10:00	10.0	10.0	10.0	10.0
10-91	08/20/98	10:00	10.0	10.0	10.0	10.0
10-92	08/20/98	10:00	10.0	10.0	10.0	10.0
10-93	08/20/98	10:00	10.0	10.0	10.0	10.0
10-94	08/20/98	10:00	10.0	10.0	10.0	10.0
10-95	08/20/98	10:00	10.0	10.0	10.0	10.0
10-96	08/20/98	10:00	10.0	10.0	10.0	10.0
10-97	08/20/98	10:00	10.0	10.0	10.0	10.0
10-98	08/20/98	10:00	10.0	10.0	10.0	10.0
10-99	08/20/98	10:00	10.0	10.0	10.0	10.0
10-100	08/20/98	10:00	10.0	10.0	10.0	10.0

Hydrol. Chemical

Table 1 - Concentration Data

Well No.	Date	Time	Depth to Groundwater (ft. bgs)	Water Surface Elev. (ft. bgs)	Depth to Groundwater (ft. bgs)	Water Surface Elev. (ft. bgs)
10-1	08/20/98	10:00	10.0	10.0	10.0	10.0
10-2	08/20/98	10:00	10.0	10.0	10.0	10.0
10-3	08/20/98	10:00	10.0	10.0	10.0	10.0
10-4	08/20/98	10:00	10.0	10.0	10.0	10.0
10-5	08/20/98	10:00	10.0	10.0	10.0	10.0
10-6	08/20/98	10:00	10.0	10.0	10.0	10.0
10-7	08/20/98	10:00	10.0	10.0	10.0	10.0
10-8	08/20/98	10:00	10.0	10.0	10.0	10.0
10-9	08/20/98	10:00	10.0	10.0	10.0	10.0
10-10	08/20/98	10:00	10.0	10.0	10.0	10.0
10-11	08/20/98	10:00	10.0	10.0	10.0	10.0
10-12	08/20/98	10:00	10.0	10.0	10.0	10.0
10-13	08/20/98	10:00	10.0	10.0	10.0	10.0
10-14	08/20/98	10:00	10.0	10.0	10.0	10.0
10-15	08/20/98	10:00	10.0	10.0	10.0	10.0
10-16	08/20/98	10:00	10.0	10.0	10.0	10.0
10-17	08/20/98	10:00	10.0	10.0	10.0	10.0
10-18	08/20/98	10:00	10.0	10.0	10.0	10.0
10-19	08/20/98	10:00	10.0	10.0	10.0	10.0
10-20	08/20/98	10:00	10.0	10.0	10.0	10.0
10-21	08/20/98	10:00	10.0	10.0	10.0	10.0
10-22	08/20/98	10:00	10.0	10.0	10.0	10.0
10-23	08/20/98	10:00	10.0	10.0	10.0	10.0
10-24	08/20/98	10:00	10.0	10.0	10.0	10.0
10-25	08/20/98	10:00	10.0	10.0	10.0	10.0



**SCIENTISTS,
RECORDS, AND THE
PRACTICAL
POLITICS OF
INFRASTRUCTURE:**

SCIENCE AND WRITING ARE INHERENTLY BOUND. SCHOLARS HAVE PAID A GREAT DEAL OF ATTENTION TO WRITING IN SCIENCE, PARTICULARLY THE ACT OF FORMAL WRITING AND PUBLICATION. A CONSEQUENTLY, BUT NOT NECESSARILY, A MORE INFORMAL COMMUNICATIONAL SELF-FORMAL PUBLICATION IS ONLY ONE SITE OF INTERACTION BETWEEN SCIENCE AND THE PRODUCTION OF TEXT. OTHER KINDS OF WRITING, PARTICULARLY RECORDS OF RESEARCH, ARE MORE COMMON IN SCIENCE THAN IN OTHER DOCUMENTS, AND YET THERE IS A TENSION FOR GRANTED QUALITY AND A LACK OF ATTENTION AROUND THE ISSUE OF COMMUNICATION. COMMUNICATION IS A CRUCIAL PART OF SCIENCE TO SUPPORT OTHER TASKS, EXTEND IN TIME AND SPACE TO ALL NEEDS OF MODERN SCIENTIFIC PRACTICE, AND IS SO THOROUGHLY EMBEDDED IN THAT PRACTICE, IT WAS TAKEN FOR GRANTED AND TRANSPARENTLY ALL BACKGROUND INFORMATION AND INFRASTRUCTURES.

9. TENSIONS BETWEEN COMMUNITY AND INSTITUTIONAL STANDARDS FOR SCIENTIFIC RESEARCHING AND IDEAL PRACTICES. THESE TENSIONS THEMSELVES ARE POTENTIAL LAPS OF COMMUNICATION AND UNDERSTANDING BETWEEN FUNDING AGENCIES, RESEARCH INSTITUTIONS, JUNIOR RESEARCHERS, AND STUDENTS. IT IS ALSO A FUNDAMENTAL PARADOX OF INFORMATION INFRASTRUCTURE.

4. WHILE LABORATORY RECORDS AND DOCUMENTS SERVE AS ADMINISTRATIVE MEMORY, THEY PLAY MANY OTHER ROLES - INCLUDING DOCUMENTING THE GROWTH OF THE SELF AS SCIENTIST, ESTABLISHING AGENCY OVER THE ENVIRONMENT, AND MEDIATING BETWEEN INTERNAL (TO THE SCIENTIST) AND EXTERNAL (FROM THE COMMUNITY AND INSTITUTIONAL SOURCES OF ACCOUNTABILITY).

RESEARCH QUESTIONS

- What is the difference of the following: *business as a profession* vs. *business as a career*?
- What are the main differences between *business* and *entrepreneurship*?
- What is the difference between *business* and *entrepreneurship*?

- * <http://www.oxfordjournals.org/doi/10.1093/oxfordjournals/oxfam.a012222>

[illegible]

LABORATORY

TO PUT THIS RESEARCH INTO A LARGER POLICY CONTEXT, I WILL BE CONDUCTING INTERVIEWS WITH GRANTS ADMINISTRATORS AND OFFICIALS AT NATIONAL AGENCIES THAT FUND AND OVERSEE BIOLOGICAL RESEARCH: THE NATIONAL INSTITUTES OF HEALTH AND THE OFFICE OF RESEARCH INTEGRITY, DEPARTMENT OF HEALTH AND HUMAN SERVICES. TOPICS THAT I WILL EXPLORE INCLUDE:

- IMPACT AND IMPLICATIONS OF THE FREEDOM OF INFORMATION ACT (FOIA)
- DATA AND LABORATORY AUDITING PRACTICES
- ETHICS TRAINING OF SCIENTISTS
- RELATIONSHIP BETWEEN NH/SLW AND THE RESEARCHERS THAT ARE FUNDED
- INSTITUTIONAL PERSPECTIVES ON RECORDS CREATION AND MANAGEMENT

Copyright © 1998 International Textbook Company. All rights reserved. 01-998-1010

- [illegible]

THIS INTERNATIONAL RESEARCH PROJECT INVOLVES A SERIES OF INTERDISCIPLINARY RESEARCH AREAS, BOTH APPLIED AND THEORETICAL. UNDERSTANDING HOW AND WHY SCIENTISTS KEEP RESEARCHING THE VALUES THEY ASSESS TO THEM AND THE ROLE OF BELIEFS IN THE PRODUCTION OF SCIENCE HAS IMPACT FOR A VARIOUS STUDIES, INCLUDING SCIENCE AND SCIENCE STUDIES.

Biochemical



Figure 1. Model for DCC-VASP recruitment to the cell surface.



Figure 2. The DCC-VASP interaction. DCC is a single-pass transmembrane protein with an extracellular domain, a single-pass transmembrane domain, and a cytoplasmic tail. VASP is a cytoplasmic protein that interacts with the DCC cytoplasmic tail.

DCC/T9
DCC/T9
DCC/T9
EVL/A
EVL/A
EVL/A
EVL/A
EVL/A
EVL/A

Localization

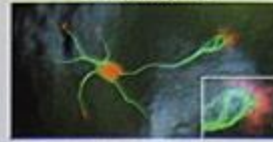


Figure 3. The cytoplasmic tail of a developing sensory neuron. A neuron is composed of microtubules (green) and actin filaments (red). Image from Kuhl et al. (2000).

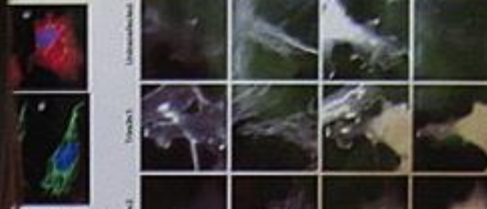


Figure 4. Localization of DCC (green) and VASP (red) in a cell. The DCC-VASP interaction is shown in the merged image. The DCC-VASP interaction is shown in the merged image. The DCC-VASP interaction is shown in the merged image.

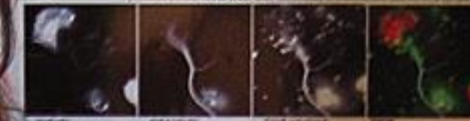


Figure 5. DCC localization in 15.5 embryonic sensory neurons. Microtubules are stained with anti-tubulin antibody and actin is stained with phalloidin. DCC localizes to microtubules.

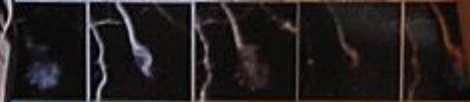


Figure 6. DCC and VASP localization. 15.5 embryonic sensory neurons stained with anti-tubulin antibody and anti-actin antibody. DCC localizes to microtubules and VASP localizes to actin filaments.

Conclusions

- Yeast two hybrid results suggest that a segment of Trim9 could interact with En1 and the cytoplasmic tail of DCC.
- Full length proteins may not allow access to binding sites exposed in truncated versions.
- Parts of Trim9 could be poorly expressed or toxic to yeast.
- Trim9 is expressed specifically in the nervous system and localizes to microtubules in primary cortical neurons.
- We hypothesize that Trim9 interacts with En1-VASP proteins when they are recruited to filopodia during axon guidance.

MIT Summer Research Program
2004
Leticia Melara
MIT







TOP 10 SFATURI PENTRU REDACTAREA POSTERELOR

1. Adaptați-vă posterul la public
2. Organizați clar conținutul posterului
3. Îndepliniți toate indicațiile organizatorilor pentru dimensiune și formatul posterului
4. Asigurați-vă că imaginile sunt clare din punct de vedere vizual
5. Evitați flowery fonts și rămâneți la fonturile de bază
6. Păstrează toate titluri la o dimensiune a fontului vizibilă de la 1,2 – 2 m distanță
7. Asigurați-vă că există un contrast suficient de mare între text și fundal
8. Folosește pentru o scurtă revizie cu „alți ochi”
9. Includeți întotdeauna datele de contact
10. Pregătește un speech

ACS Publications – 2021 <https://axial.acs.org/2016/03/08/top-10-poster-presentation-tips/>

Soft de redactare a posterelor:

- Adobe Illustrator
- InDesign
- Canvas
- Publish-It
- Corel Draw
- LaTeX
- PowerPoint



Template Provided By GeniGraphics - 800.790.4001

Replace This Text With Your Title

John Smith, MD¹; Jane Doe, PhD²; Frederick Jones, MD, PhD^{1,2}
¹University of Affiliation, ²Medical Center of Affiliation



Abstract

Click here to insert your Abstract text. Type it in or copy and paste from your Word document or other source.

This text box will automatically re-size to your text. To turn off that feature, right click inside this box and go to **Format Shape, Text Box, Autofit**, and select the "Do Not Autofit" radio button.

To change the font style of this text box: Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is Calibri 32pt and is easily read up to 5 feet away on a 36x48 poster.

Introduction

GeniGraphics® has provided this template to assist in preparation of a medical or scientific research poster. The dimensions are set to 36" high by 48" wide and the layout is for use as a Tri-Fold poster.

The poster is designed to fold at 12" in from the sides so it can be stored or shipped at 36" high by 24" wide. The folds align precisely in between the columns.

Order your poster from GeniGraphics and we will perform a free design review and advise you if we see anything that may be a concern for printing. We'll even help tidy things up.

We have more history with PowerPoint® than any other printing company. In fact, we helped Microsoft® design the software and we created all of the original color themes, templates, and clip art galleries. We know how to make your printed poster look just like it does on screen. Other printing companies and copy centers will blindly convert your file to another format prior to printing. This can result in text shifting, symbols changing, and altered colors. We know the secrets to avoid those issues. So choose GeniGraphics for the most accurate reproduction available.

Contact Information

<your name>
<your organization>
Email:
Website:
Phone:

1.
2.
3.
4.
5.
6.
7.
8.

Methods and Materials

Click here to insert your Methods and Materials text. Type it in or copy and paste from your Word document or other source.

Remember, the section headers you see here are just examples that we often see on posters. Feel free to change them, move them around, resize them, whatever suits your needs.

Some other common headings we see:

- Research Question
- Background
- Hypothesis
- Procedure
- Case Study
- Data & Analysis
- Summary



Figure 1. Label in 24pt Calibri.



Figure 2. Label in 24pt Calibri.

Results

Click here to insert your Results text. Type it in or copy and paste from your Word document or other source.

To change the font style of this text box: Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is Calibri 32pt and is easily read up to 5 feet away on a 36x48 poster.

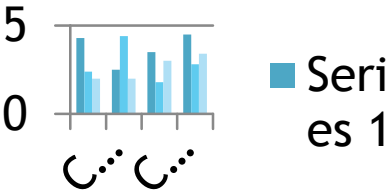
Zoom out to 100% to preview what this will look like on your printed poster.

Speaking of Results, yours will look better if you remember to run a spell-check on your poster! After you've added your content click on **Review, Spelling**, or press F7.

Table 1. Label in 24pt Calibri.

	Heading	Heading	Heading
Item	800	790	4001
Item	356	856	290
Item	228	134	238
Item	954	875	976
Item	324	325	301
Item	199	137	186

Chart 1. Label in 24pt Calibri.



References

Discussion

Click here to insert your Discussion text. Type it in or copy and paste from your Word document or other source.

This text box will automatically re-size to your text. To turn off that feature, right click inside this box and go to **Format Shape, Text Box, Autofit**, and select the "Do Not Autofit" radio button.

To change the font style of this text box: Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is Calibri 32pt and is easily read up to 5 feet away on a 36x48 poster.

Conclusions

Click here to insert your Conclusions text. Type it in or copy and paste from your Word document or other source.

This text box will automatically re-size to your text. To turn off that feature, right click inside this box and go to **Format Shape, Text Box, Autofit**, and select the "Do Not Autofit" radio button.

To change the font style of this text box: Click on the border once to highlight the entire text box, then select a different font or font size that suits you. This text is Calibri 32pt and is easily read up to 5 feet away on a 36x48 poster.

Zoom out to 100% to preview what this will look like on your printed poster.

Future Directions

Click here to insert your Future Directions text. Type it in or copy and paste from your Word document or other source.

This text is Calibri 32pt and is easily read up to 5 feet away on a 36x48 poster.

Acknowledgements

Acknowledgements text goes here.

Template for a 48"x36" poster

Presenter name, Associates and Collaborators

Department of XXXXXXXXXXXXXXXX, College of XXXXXXXXXXXXXXXX, University of Illinois at Urbana-Champaign

Introduction

This editable template is in the most common poster size (48" x 36") and orientation (horizontal); check with the conference organizers for specific conference requirements regarding exact poster dimensions.

Writing Style:

The writing style for scientific posters should match the guidelines for your particular research discipline. Use the campus [Writing Style Guide](#) for general guidance with academic titles, names of campus buildings, the correct way to refer to the campus, etc.

Campus Guidelines

Authors should be aware of and follow the guidelines of the [Institutional Review Board](#) and the [guidelines for campus copyright](#).

Aim

How to use this template

Highlight this text and replace it with new text from a Microsoft Word document or other text-editing program. The text size for body copy and headings and the typeface has been set for you. If you choose to change typefaces, use common ones such as Times, Arial, or Helvetica and keep the body text between 26 and 32 points.

The text boxes and photo boxes may be resized, eliminated, or added as necessary. The references to the department, college and university, including the logo, should remain.

Refer to the last page for logos commonly used on campus posters. You can drag and drop them to your personal PowerPoint scrapbook for use in subsequent posters; refer to PowerPoint help documents for more specific information regarding how to use the scrapbook.

Method

Text

Be sure to spell check all text and have trusted colleagues proofread the poster. In general, authors should:

- Use the active tense
- Simplify text by using bullet points
- Use colored graphs and charts
- Use bold to provide emphasis; avoid capitals and underlining
- Avoid long numerical tables

Authors should re-write their paper so that it is suitable for the brevity of the poster format. Respect your audience—as a general rule, less is more. Use a generous amount of white space to separate elements and avoid data overkill. Refer to Web sites or other sources to provide a more in-depth understanding of the research.

Results

Images

TIFFs are the preferred file format for images appearing in printed posters. Avoid the use of low-resolution jpgs, especially those downloaded from the Internet, as they will reproduce poorly.

In order to insert an image, use the menu toolbar at the top of your screen.

Select:

- 1 Insert
- 2 Picture
- 3 From file
- 4 Find and select the correct file on your computer
- 5 Press OK

Be aware of the image size you are importing.

Printing and Laminating

Facilities & Services Printing Department will print and laminate posters in the dimensions of this template and provide a mailing tube for transportation at these prices:

\$60.00 printing
\$18.00 lamination
\$5.00 proof (12.6" x 16.8")
\$3.50 mailing tube

To place your order, contact the Printing Department at 217-333-9350 or [send an e-mail](#).

Please refer to estimate #005238 when submitting your order. Plan ahead; allow three business days for the Printing Department to complete the order. Other dimensions are available; the charge is by square foot. Contact the Printing Department for pricing information.

Resolving Printing Problems

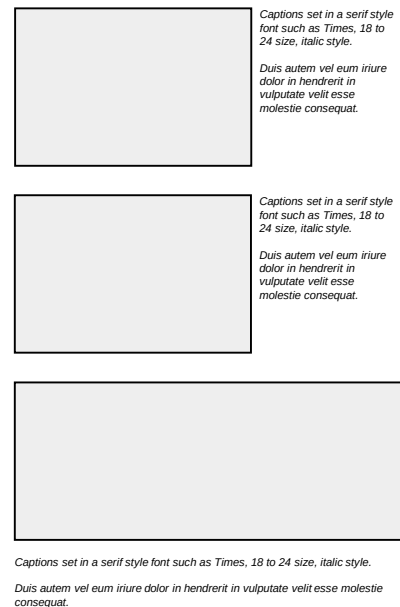
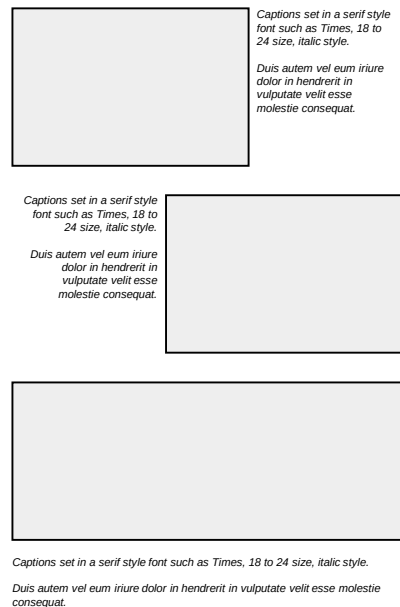
PowerPoint does not always create the best PostScript files for printing. If you choose to have these printed on a campus plotter or by a third-party vendor and have printing errors, you may wish to export the file as a PDF and resend the file to the printing server/plotter.

Conclusions

We have created this template with scientific researchers in mind and with the help of feedback we have received. We encourage any comments or suggestions so that we can continue to update and improve this template. [Visit this page to make a suggestion](#).

Acknowledgments

Check to make sure you've acknowledged partner and funding agencies, either with text or with their logos.



Put the Title of the Poster Here

Researcher's names

Name of Institution can be placed here

Abstract

Insert your text here. You can place your organizations logos on either side of the title of the poster.

Methods

Insert your text here. Remember, you can change template colors to suit your own taste or institution colors. The graphic can be replaced with several smaller graphics.

Conclusion

Put your information here. Remember to size your font accordingly.

Objectives

Insert your text here. Remember to size your font to fit your information into the space. The larger your font, the easier it will be for others to read your poster.

Chart or Graphic title here

References

Insert references here

Insert Your Poster Title Here

Your Name Goes Here
Institution Name Can Go Here

Put Your
Logo Here

1 Background

Insert your text here. Remember, you can adjust the font size to fit your text.
Insert your text here. Move the text and graphics boxes to fit your individual needs. Insert your text here. Remember, you can adjust the font size to fit your text.
Insert your text here. Remember, you can adjust the font size to fit your text. Insert your text here. Remember, you can adjust the font size to fit your text.

2 Methods

Insert your text here. Change the font size to fit your text in the space.
Remember, you can adjust the font size to fit your text. Insert your text here. Remember, you can adjust the font size to fit your text.
Change the font size to fit your text in the space. Move the text and graphics boxes to fit your individual needs. Insert your text here. Remember, you can adjust the font size to fit your text.

graphic goes here

3 Results

Insert your text here. Change the font size to fit your text in the space.
Remember, you can adjust the font size to fit your text. Insert your text here. Remember, you can adjust the font size to fit your text.
Insert your text here. Move the text and graphics boxes to fit your individual needs. Insert your text here. Remember, you can adjust the font size to fit your text.
Change the font size to fit your text in the space. Move the text and graphics boxes to fit your individual needs.

1	2	3	4	5
A	B	C	D	E

5 Conclusion

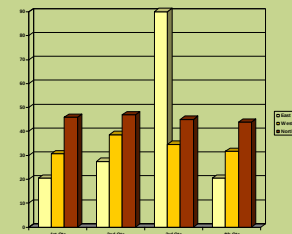
Insert your conclusion here

- ☐ One
- ☐ Two
- ☐ Three
- ☐ Four

Talk a little more about your conclusions here.
More information to follow this. And finally one last point to make your poster complete.
Remember, you can adjust the font size to fit your text. Insert your text here. Remember, you can adjust the font size to fit your text.
Change the font size to fit your text in the space. Move the text and graphics boxes to fit your individual needs.

4 Data

Insert your text here.
Remember, you can adjust the font size to fit your text.
Insert your text here. Move the text and graphics boxes to fit your individual needs.



* References

1. Insert your text here. Change the font size to fit your text in the space.
2. Insert your text here. Change the font size to fit your text in the space.
3. Insert your text here. Change the font size to fit your text in the space.

Funding Source:
First Person
Second Contributor

Using a Windbreak Habitat Model Across Broad Landscapes: The Effect of Local Landscape Composition and Geographic Location

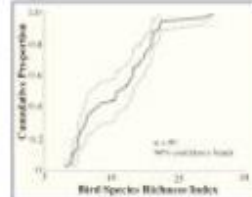
George Hess¹, John Poulsen², Raymond O'Connor³, Jeff Bay³

1. Windbreaks as Habitat

Agricultural landscapes — fields, pastures, and orchards — are managed to produce food and fiber for people. In the U.S. Great Plains, an extensive agricultural landscape, windbreaks have been planted to protect fields, crops, livestock, and residents from the prevailing winds. Windbreaks provide some of the winter-wind habitat for birds and other wildlife that people have come to value. Windbreaks make up about 25% of the wooded cover in Nebraska, much of the other wooded cover occurs along riparian corridors.

Although they protect soil from wind erosion and provide habitat for some species, windbreaks also contribute to the fragmentation of prairie grasslands. Prairie fragmentation negatively impacts prairie wildlife such as prairie grouse, dickcissels, upland sandpipers, and prairie chickens.

- ★ Forty windbreaks were sampled using two-day sampling with a survey stratified by intensity of cultivation.
- ★ Most sample windbreaks little or no winter-wind habitat.
- ★ Habitat characteristics of each windbreak were measured in 1994.
- ★ Thirty-five farmers allowed windbreaks to remain in 1994.



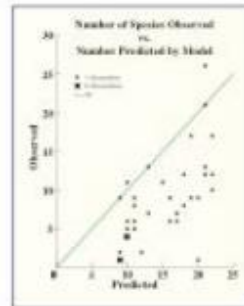
- ★ Using expansion factors associated with each sample, we estimated the habitat value of windbreaks for the region (graph left).
- ★ We estimated that half of Nebraska's windbreaks support fewer than 50 breeding bird species (graph left).
- ★ We also estimated that between 67% and 80% of windbreaks are smaller than 1.2 km² because of this, suggesting that few Nebraska windbreaks provide habitat for forest interior or area-sensitive birds.

4. Validating BSRI Model

In 1995, a team of three ornithologists revisited 10 of the 40 windbreaks of greatest relative habitat value between late May and early July.

Each windbreak was visited four times. Data were collected between mid-July and late August and then later after sunset. All observed birds were identified in species and recorded using spot mapping techniques. Two trained observers at the same time and were placed in the field past through the windbreak for each visit.

Because the windbreaks were visited, we assumed all species were detected.



5. Results of Validation

The model overestimated the number of bird species in the Nebraska windbreaks (graph left). However, the relative rankings of windbreaks in general proved. A total of 34 species were observed.

A strong, significant relationship was found between deviation of observed from predicted number of species and any windbreak attribute or the geographic location of individual windbreaks.

Forest interior, area-sensitive, and forest edge species occurred in the largest, oldest, most complex windbreaks.

Openland and grassland species occurred in the smaller, younger, less complex windbreaks.

6. Failure of the Model

There are several possible explanations for the failure of the model to predict accurately the number of bird species in the windbreaks.

- 1) Geographic differences in species richness. The model was developed in Kansas, which has a 20-year species list that Nebraska (Nebraska Bird Survey) species is based on (Nebraska Bird Survey).
- 2) Dependence on different windbreak characteristics. The number of species in Nebraska's windbreaks depends differently on windbreak characteristics than did the number of species in Kansas.
- 3) Dependence on landscape-scale characteristics. The number of species in Nebraska's windbreaks depends on characteristics of the surrounding landscape.

7. Local Landscape-Scale Effects

Land cover data were collected for the quarter-section (360 acres) of the windbreak. Land cover data were collected for the quarter-section (360 acres) of the windbreak. Land cover data were collected for the quarter-section (360 acres) of the windbreak.

Landscape metrics compared selected values: forest fragmentation, forest edge length, edge area, forest, matrix of patches, forest patch size, forest patch area, forest patch area, forest patch area.

The deviation between observed and predicted number of species was not significantly related to any of the landscape metrics. This suggests that within a region, the number of species using a windbreak depends primarily on windbreak attributes.

8. Conclusions

- 1) The Bird Species Richness Index for windbreaks cannot be extended simply to describe species richness in large regional-scale habitat studies or to estimate species richness in other regions.
- 2) Local landscape-scale composition and structure do not explain the failure of the model.
- 3) The presence of species guilds in windbreaks (e.g., forest interior, grassland) may be explained by windbreak size and complexity. The model may be more useful for predicting the presence or absence of species guilds than for predicting the total number of species present.

Acknowledgements: This work could not have been done without the many dedicated people at the National Agricultural Statistics Service who helped plan and execute the 1994 data collection effort, the kind farmers who allowed us to survey their windbreaks, the five ornithologists who spent six weeks traveling around Nebraska, and many other people from the University of Nebraska, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, and the Environmental Protection Agency. Funding was provided by the Environmental Protection Agency and the USDA Agricultural Research Service.

1. North Carolina State University, Forestry Department, Raleigh, NC
2. University of Maine, Department of Wildlife Ecology, Orono, ME
3. North Carolina State University, Statistics Department, Raleigh, NC

Un pic prea mult text,
dar nu e prea rău.





Determining the Wear Resistance of Occlusal Splints in a Prospective Clinical Study

P. Ottl, P. Schmelz, A. Piwowarczyk, H.-Ch. Lauer

Dept. of Prosthodontics, School of Dentistry (Director: Prof. Dr. H.-Ch. Lauer), ZZMK (Carusium), J. W. Goethe University, Frankfurt, Germany

Objective

- To determine quantitatively the wear resistance of a newly developed light-curing splint resin over a period in situ of six months.

Materials and Methods

Patients

n = 20 consecutive patients
(mean age: 34.7 years; 12 F, 8 M)

Inclusion criteria

- Natural dentition/fixed denture
- Complete dentition to at least the 1st molar and
- for the *stabilization splint sample*:
- Insufficient occlusal support
- Increased occlusal loss of dental hard tissue

for the *distraction splint sample*:

- TMD pain and
- Complete anterior dislocation of the disk without reduction with terminal reduction
- TMD entrapment



Fig. 1: Stabilization splint in situ

Resin splint material (Fig. 1)

- Light-curing (400–500 nm) resin made of high-molecular dimethacrylates with organic and inorganic fillers
- Does not contain methyl methacrylate

Study design

- Duration: 6 months
- Types of splints (maxilla, n = 10 each): stabilization splints, distraction splints
- Splint wear mode: 24 hours
- Examinations: before insertion (BI), at 4 weeks (4W), at 3 months (3M), at 6 months (6M)
- Occlusal adjustments were restricted to the time before 4W.

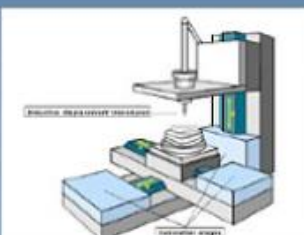


Fig. 2: Test setup

Measuring technology (Fig. 2)

- Vibration-isolated table framework
- 3 translation stages (for directions x, y, and z) (DC-Motor) (PI, Walldorf)
- DV 4 stereomicroscope (Zeiss, Oberkochen)
- WA 20 inductive displacement transducer/Spider8 digital 8-channel measurement unit/Catman 32 software V2.1 (HBM, Darmstadt)
- Local coordinate storage for occlusal contacts during baseline measurements
- Ten measurements each in regions 13, 23, 16, 26 (BI, 4W, 3M, 6M)
- Splint repositioned on remount cast

Results

- The medians of the occlusal vertical gaps/losses (wear, resin tension, water sorption, etc.) are shown in Fig. 3 (stabilization splints) and Fig. 4 (distraction splints).



Fig. 3: Occlusal vertical gaps/losses (median) of the new resin over a period of six months (n = 10 stabilization splints)

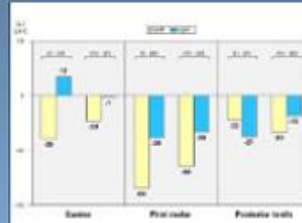
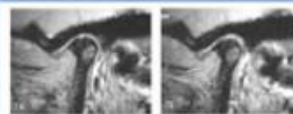


Fig. 4: Occlusal vertical gaps/losses (median) of the new resin over a period of six months (n = 10 distraction splints)

- Statistical analysis (Mann-Whitney U-test, $p \leq 0.05$) showed no significant differences when comparing the corresponding results of stabilization and distraction splints.



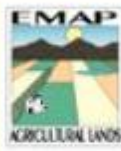
Figs. 5a and b: Sagittal oblique images (SBO) of the condylar head position without splint (Fig. 5a) and with distraction splint inserted (Fig. 5b) following six months of wearing.

Conclusions

- The present study *clinically* confirms the good wear resistance results of the new resin splint material obtained in a previous *in-vitro* study [Ottl et al., Dtsch Zahnärztl Z 52, 342 (1997)].
- Good wear resistance is of great importance for maintaining the therapeutic mandibular position during the treatment period (Figs. 5a and b).



Poster frumos!



A Framework for Assessing the Condition of Agricultural Lands

George Hew¹, Anne Hellkamp², Mike Munster³, Steve Peck³, Lee Campbell³, Betty McQuaid⁴, Steve Shafer^{3,5}

Mission: To develop indicators of the condition of agricultural lands within an ecological framework, and to monitor and evaluate this condition on a regional basis.



Sustainable agriculture has been discussed, defined, and described in countless papers. Definitions tend to be broad and encompass ecological, economic, social, and even policy dimensions. Although these dimensions are interrelated, each may be measured independently. In our efforts, we sought methods to evaluate only the ecological aspects of sustainability.



People place values on agricultural lands that must be addressed if monitoring is to be relevant. The foremost goal for agricultural lands is to produce food and fiber for human use.

Other desired outcomes can be considered goals for the target landscape and sometimes function as constraints on production. These include clean air and water, wildlife habitat, and aesthetically pleasing landscapes.

The ecological condition of agricultural land is defined by its productivity and the degree to which natural biotic and abiotic resources are conserved and preserved. Agricultural land in good condition is productive and does not compromise natural resources. Sustainability is the ability to maintain good condition over time.



Indicators were selected to reflect crop productivity and land stewardship.

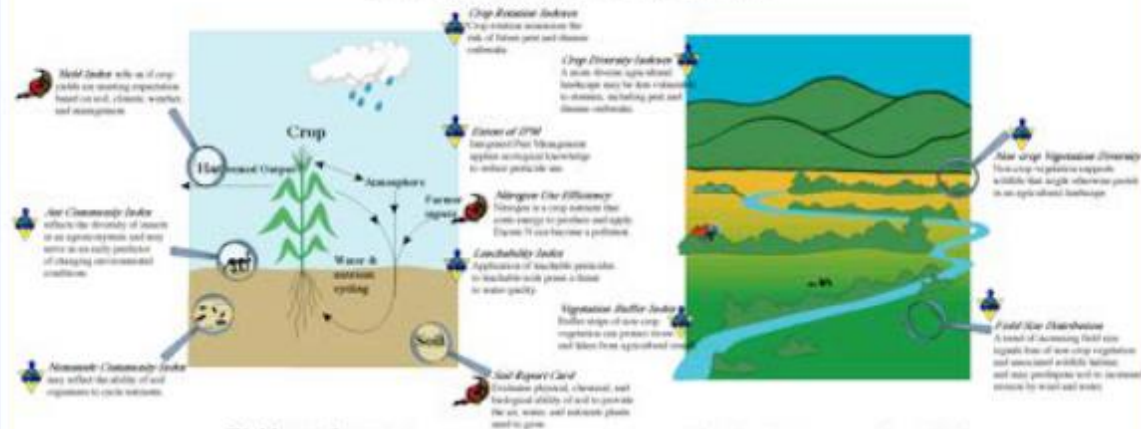
In making an assessment, condition is reported for each indicator. An overall condition may also be reported, but depends critically on the relative weighting of the goals for agricultural lands.

The terminology can also evaluate trends in crop productivity and stewardship practices.

Potential Indicators for Annually Harvested Herbaceous Cropland

In a working group, we chose to concentrate our efforts on developing indicators for **annually harvested herbaceous cropland** — land planted with crops that are harvested every year whether the plants are annual or perennial. Common examples are corn, wheat, soybeans, alfalfa hay, and sorghum.

We also endeavored to supplement, rather than duplicate, existing efforts. Our conceptual framework is flexible enough to incorporate indicators based on data from other monitoring efforts. For example, an erosion indicator could be developed using the USDA Natural Resources Conservation Service's National Resource Inventory data.



Fields are for crops . . .

. . . but landscapes are for all of us.

Acknowledgements: The EMAP Agricultural Lands Resource Group thanks the many individuals and organizations that made this effort a success. The individuals are too numerous to mention, but organizations include the USDA's Agricultural Research Service, Forest Service, National Agricultural Statistics Service, and Natural Resources Conservation Service; the U.S. Environmental Protection Agency; North Carolina State University; University of Missouri; Oregon State University; University of Tennessee; and, with 1 person the list of organizations is pretty long, too. Thanks to all!

1. North Carolina State University, Forestry Department, Raleigh NC
2. Duke University Medical Center, Durham NC
3. North Carolina State University, Department of Plant Pathology, Raleigh NC
4. USDA Natural Resources Conservation Service, Raleigh NC
5. USDA Agricultural Research Service, Raleigh NC



De unde sa incep?



PREVALENCE OF OBESITY AMONG INNER CITY LATINO CHILDREN AND ADOLESCENTS

Nazrat M. Mirza MD, ScD, Jill Merchant MS, Leslie Baker, PhD

Children's National Medical Center and George Washington University School of Medicine and Health Sciences, Washington, DC

Background

Obesity is a multifactorial and public health problem facing children and adolescents in the US. It is particularly significant in the increasing prevalence of obesity and its complications among the Latino population. Among this ethnic group there is a strong sense of family and children are a priority. Because of the pressures placed on children, parents may be a misguided perception that children should not be denied food or other favorite foods. The obesity problem in adolescents is concerning not only because of the associated health and psychosocial consequences, but also because obese children tend to become obese adults. Since obesity is associated with many chronic diseases, it will have an enormous impact on the health care system.

Purpose of Study: To estimate the extent of obesity among inner city Latino children and adolescents with the overall goal of assessing the need for an obesity intervention program.

Study Design

One hundred and twenty-five charts of children and adolescents aged 4 to 18 years were randomly selected from staff child visits to Children's Hospital's Latino Language Unit for the calendar year 2005. This chart set an average of 840.76 percent (4 months, approximately 96.99%) are Latino, predominantly from El Salvador. Information extracted from the charts included weight, height, blood pressure, Tanner classification, history, and physical findings consistent with obesity (enlarged head, body mass index, BMI) was calculated from measured weight and height. This analysis was done using SAS version 9.1.

Results

The distribution of the study sample is shown in Table 1. About 50% were females. The mean age was 10.4 years with a SD of 5.3 and a range of 4.9 to 18.7 years. The mean BMI was 22.8 with a SD of 7.4 and a range of 13.3-40.6. Overall 40% of the children and youth were overweight (BMI) 25th percentile or at risk for overweight (BMI 1-49th percentile), with no discernible difference between the two categories (Table 2). Males were more overweight and at risk for overweight than females, but the gender difference was not statistically significant. The prevalence of overweight was highest for youth ages 10 to 18 years.

Table 1. Prevalence statistics

Variable	Frequency (%)
Gender	
Male	60.4
Female	39.6
Age Categories (years)	
4-6	4.0
6-8	20.8
8-10	27.2
10-12	14.4
12-14	32.8
14-16	12.8
16-18	9.2

Results continued

Table 1 shows the distribution of overweight and at risk for overweight by age category. These data show that prevalence of overweight and at risk for overweight is high in children as young as 4 to 6 years. Although the prevalence of overweight and at risk for overweight is as low as in the age group 6-8 years, the differences were not statistically significant (Fisher Exact test, $p = 0.4$ and $p = 0.00$ respectively).

Another frequency was higher among the overweight than at risk overweight children and youth (gender, Fisher Exact Test). There was no difference in the frequency of occurrence of other symptoms such as obstructive sleep apnea, learning difficulties, behavior problems, attention, and ADHD between the overweight and non-overweight group. Only 2% of all the overweight children had their cholesterol levels checked. The cholesterol levels ranged from 112-226 mg/dL. Two percent of the children had their vision regularly assessed, and the range was 17-547 mg/dL. There was no significant association between overweight and asthma or diabetes based on presence in this small sample. Only 20% of the overweight children and youth were diagnosed and confirmation made in their charts regarding their overweight status by their health care providers. There were no referrals for overweight intervention noted in their charts.

Table 2. BMI distribution

BMI Category	Frequency (%)
At Risk for overweight (BMI 1-49 th)	
1. Both sexes (n=125)	20.8
2. Males (n=76)	22.4
3. Females (n=49)	19.2
Overweight (BMI ≥ 50 th Percentile)	
1. Both sexes (n=125)	22.4
2. Males (n=76)	24.2
3. Females (n=49)	20.8

Table 3. At Risk for Overweight and Overweight for Age Categories

Age Category	At Risk for Overweight (%)	Overweight (%)
(n=6)	(BMI 15-49 th %)	(BMI ≥ 50 th %)
4-6 yrs (n=6)	50.0	50.0
6-8 yrs (n=20)	25.0	25.0
8-10 yrs (n=27)	9.3	18.2
10-12 yrs (n=14)	14.3	27.8
12-14 yrs (n=33)	27.3	27.3
14-16 yrs (n=13)	23.1	30.8
16-18 yrs (n=9)	22.2	33.3

Conclusions & Recommendations

The prevalence rate for overweight and at risk for overweight among children and youth in this inner city Latino community is more than twice the national average. Primary health care providers need to acknowledge and accept the presence of obesity and overweight in children and adolescents early and provide appropriate management of the problem. Targeted educational and preventive strategies for overweight and obesity in children and adolescents are urgently needed for this population.



Mi-e somn!

Early Outcomes of the First 1471 Consecutive Kyphoplasty Procedures in the United States for the Fixation of Painful Osteopenic Vertebral Body Compression Fractures (VCF)

Steven R. Garfin¹, M.D., Isador W. Lieberman², W.D., Mark A. Bailey³, W.D., Joseph M. Lane⁴, M.D., Frank M. Phillips⁵, M.D., Harold S. Mathews⁶, M.D., Hansen A. Yuan⁷, W.D., Barton H. Sachs⁸, W.D., for the Kyphoplasty Study Group
¹University of California, San Diego, Medical Center, San Diego, CA; ²Cleveland Clinic, Cleveland, OH; ³Berkley Orthopedic Medical Group, Berkeley, CA; ⁴Hospital for Special Surgery, New York, NY; ⁵University of Chicago Spine Center, Chicago, IL; ⁶Mid-Atlantic Spine Specialists, Richmond, VA; ⁷State University of New York Health Sciences Center, Syracuse, NY; ⁸Wiley Medical Center, Albany, NY

BACKGROUND

- 700,000 VCFs per year
- 275,000 diagnosed, +80% due to pain
- Spinal deformity associated with
 - Significant morbidity
 - 20% increased mortality (Radio, Ann Int Med 1999)
- Current treatments ineffective
 - Open surgeries fail
 - Medical management palliative
- Vertebroplasty
 - Bilateral transpedicular cement fill
 - Relieves pain
 - Requires high pressure and runny cement
 - High risk of cement leaks
 - Up to 73% where documented (Weil et al., Radiology 1997)
 - Major complications (Chase, J Int Neurosurg 1997)
 - 1.3% in osteoporosis
 - 10% in metastatic cancers

KYPHOPLASTY

Kyphoplasty is a minimally invasive orthopedic procedure for reducing and fixing painful vertebral body compression fractures secondary to osteoporosis. Using a posterior approach, one or two inflatable Bone Tamps (Fig. 1) are inserted into the fractured vertebral body, generally using a bilateral transpedicular approach (Fig. 2). The surgeon carefully inflates the balloon tamps (Fig. 2) using radiopaque contrast medium with image, volume and pressure control. The increased balloon tamp volume compacts the inner cancellous bone as it pushes the fractured outer cortical bone back toward its normal position. The inflation path is also controlled by placement, volume and balloon design. After reduction, the balloon tamp is removed, and the resulting void is filled with thick PMMA under live manual control and low pressure. The steps of Kyphoplasty are illustrated in Fig. 3.

Fig. 1 KyphoTM inflatable Bone Tamp (30°)

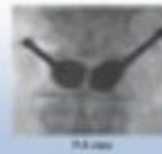
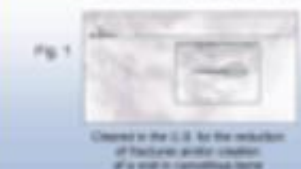


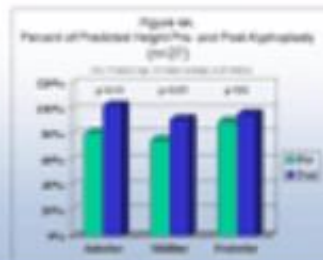
Fig. 2 Bilateral Transpedicular Fracture Reduction with the BKT

Fig. 3 Kyphoplasty Using the BKT

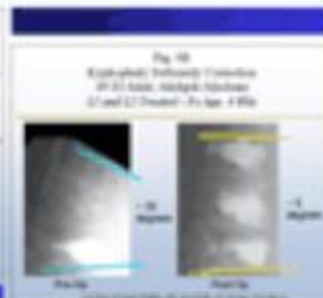
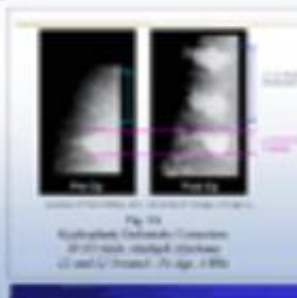


STUDY DESIGN AND METHODS

A retrospective multi-center review to assess early outcomes with Kyphoplasty. Pain was localized by physical examination. The presence of marrow edema and collapse was confirmed on MRI. General or deep local anesthesia was chosen based on anatomy, number of levels and patient status. The first 135 patients at our centers were asked to characterize their back pain as improved, the same or worse 24 hours post-op and at last follow-up. Fractured and nearest normal vertebral body heights were measured anterior, midline and posterior in the first 27 vertebral body fractures treated by one surgeon (MMF). The height of the nearest normal vertebral body was used to calculate the % of predicted height for all the vertebral bodies (Fig. 4A) and for the sub-set where which had lost 10% or more of height before treatment (Fig. 4B).



The pre-treatment height was subtracted from the predicted height, then divided by the post-treatment height subtracted from the predicted height, to find the percentage of lost height restored. One set of X-rays by one surgeon (MMF) are used to show an example height restoration (Fig. 5A) and deformity correction (Fig. 5B). Device-related major complications from all procedures are reported. PMMA leaks in the first 70 procedures performed by one surgeon (PHL) were assessed with X-ray and MRI.



PRELIMINARY RESULTS

- 1471 procedures (see Table 1)
 - Average follow-up: 41 months
 - Range: 14 hours to 7 years
- 98% symptom
- 94% patients (see Table 2)
 - Average is 10 months (17)
 - Average maximum pressure: 1900 (range 80-270)
 - Average tamp inflation volume: 1.1 cc (range 0.4-1.9 cc)
 - Mean BKT expansion rate: 10%
- 98% satisfaction
- 98% repeat pain improvement at 1 month
- 48% 48% reduction of lost height (Figs. 4A, 4B, 5A, 5B)
- No increased incidence of adjacent fractures
- 0.0% device-related major complications
 - 1 neurological
 - 1 pulmonary
 - 1 bleeding
 - 0 quality
- 0.0% lost rate (long-term follow-up)

CONCLUSIONS

Kyphoplasty is an important treatment option that provides immediate mobility and return to activities of daily living to patients with acutely painful vertebral body compression fractures secondary to osteoporosis. Kyphoplasty facilitates fracture reduction and deformity correction. While reduction is more likely in acute fractures (few months or less), it has been seen in fractures over one year old. Kyphoplasty also provides rapid pain relief in the nearly all patients, and this result is independent of fracture reduction. The safety profile of Kyphoplasty compares favorably to the published safety profile of vertebroplasty.



O.K!
 Dar pe ce drum sa apuc?

A Large-Scale Public Library Renovation in Taiwan



A Large Scale Public Library Renovation in Taiwan

Library Association of R.O.C.
National Teaching Library of Taiwan

ABSTRACT

There are 333 public libraries, including city, town, and village public libraries, in Taiwan. At the end of 1990s, public book in Taiwan are not fit in the digital environment in local communities.

In order to upgrade the quality of public library services in Taiwan to meet users needs and to foster lifelong learning, in 2003, the central government of Taiwan approved a budget of NT\$1.2 billion (US\$ 4 million) as a large-scale public library renovation project in 301 public libraries.

National Teaching Library was designated as coordinate library to execute the project from February 2003 to June 2004. 301 public libraries were divided into eight groups according to the geographical area, and a steering committee was formed, consisting 16 committee members from the fields of library and information science, architecture, space design, literature, and history. 16 committee members were assigned to one of eight groups of 301 public libraries to help and to give suggestions of renovation, improvement, replacement, service programs of each library.

The project was executed and completed efficiently and effectively in June 2004. This poster presentation will display the results of the renovation, improvement, replacement, library management, and services of 301 public libraries in Taiwan. The contents of the poster will be explained by words, pictures, and statistical tables.

Keyword: Public Library

<http://www.ntl.gov.tw>



中華民國圖書館學會
中華圖書館學會



Background

The last three decades, reading learning, social information, and entertainment have been the main functions of public libraries. However, the role of public libraries has been changing rapidly. In the 1990s, the role of public libraries has been changing from a traditional library to a modern library. The role of public libraries has been changing from a traditional library to a modern library. The role of public libraries has been changing from a traditional library to a modern library.

Figure 1: Member of Public Libraries in Taiwan

Category	Member Number	1996	2000	2004	2008
Public Libraries	333	333	333	333	333
City Public Libraries	100	100	100	100	100
Town Public Libraries	100	100	100	100	100
Village Public Libraries	133	133	133	133	133

Figure 2: Member of Libraries in each administrative level involved in the renovation project

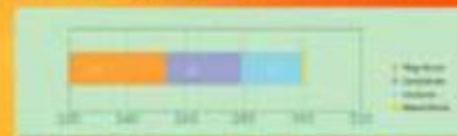


Figure 3: Before and After the renovation of the National Teaching Library of Taiwan



Objectives

The main objectives of the renovation project are to improve the quality of public library services, to meet the needs of users, and to foster lifelong learning. The project aims to create a modern, bright, and spacious interior for public libraries.

Organizing Structure of the Renovation

- Steering Committee: To coordinate the renovation project and to provide guidance and support to the project teams.
- Project Teams: To execute the renovation project and to provide services to the public.
- Steering Committee Members: To provide guidance and support to the project teams.
- Project Team Members: To execute the renovation project and to provide services to the public.

Findings and Results

- The renovation project was completed efficiently and effectively in June 2004.
- The renovation project improved the quality of public library services and met the needs of users.
- The renovation project fostered lifelong learning and provided a modern, bright, and spacious interior for public libraries.

Implementation of the Renovation Project

The renovation project was implemented in a phased manner. The first phase involved the renovation of the National Teaching Library of Taiwan. The second phase involved the renovation of the other public libraries.



How to achieve the project



Implementation of the Renovation Project

The renovation project was implemented in a phased manner. The first phase involved the renovation of the National Teaching Library of Taiwan. The second phase involved the renovation of the other public libraries.



The renovation project was completed efficiently and effectively in June 2004. The renovation project improved the quality of public library services and met the needs of users. The renovation project fostered lifelong learning and provided a modern, bright, and spacious interior for public libraries.

www.ntl.gov.tw



Ferește-mă, Doamne!

WHICH IS MORE IMPORTANT: NUMBER OF PATCHES OR CONNECTIVITY?

Darin Kalisak, PBS Student

Contact: dkalisak@pbsu.edu

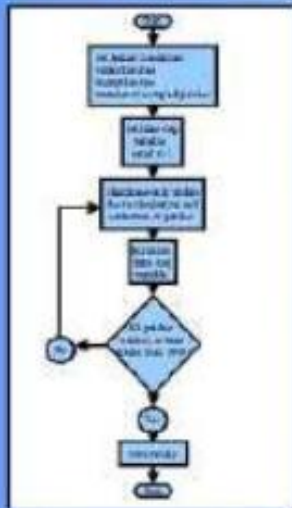
INTRODUCTION AND OBJECTIVES

Many populations are not isolated, with isolated species would benefit from a clear understanding of the effects of different connectivity patterns on local and regional population dynamics. In particular, a metapopulation with multiple interacting patches and subpopulations, it is important to know what connectivity patterns are effective in a given system. This is not just a theoretical question, but a practical one. For example, in a landscape with multiple patches, it is important to know what connectivity patterns are effective in a given system.

As an example, in a landscape with multiple patches, it is important to know what connectivity patterns are effective in a given system. This is not just a theoretical question, but a practical one. For example, in a landscape with multiple patches, it is important to know what connectivity patterns are effective in a given system.

Developed a simple metapopulation model to investigate the effects of connectivity patterns on the number of patches, which is important to know in a given system. This is not just a theoretical question, but a practical one. For example, in a landscape with multiple patches, it is important to know what connectivity patterns are effective in a given system.

THE PROGRAM



ASSUMPTIONS AND LIMITATIONS

Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

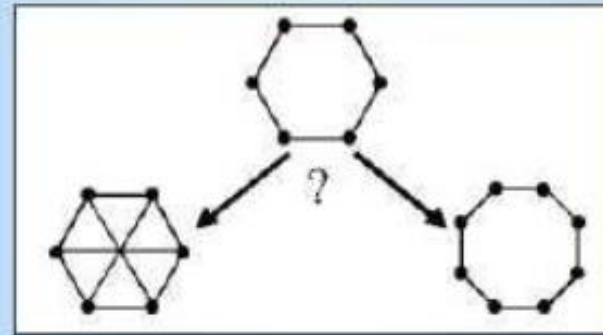
Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

Individuals are not mobile between patches. The model assumes that the number of patches is constant. The model does not consider the effects of local extinction or migration.

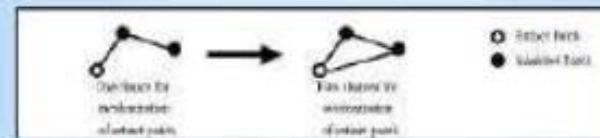
THE ISSUE



A metapopulation is a collection of discrete population patches, in which individual patches may typically go extinct and be recolonized. In the long-term viability of the metapopulation depends on the ability to add new patches or to increase the number of migration pathways between existing patches.

Adding patches increases the overall population of the organism, and makes it more likely to be able to increase the number of patches which would have to go extinct.

Adding migration pathways increases the likelihood of recolonization of extinct patches, by giving extinct patches access to new sources of immigration.

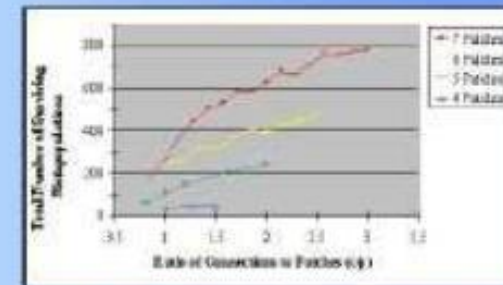


RESULTS

Developed the model by creating a metapopulation with a given number of patches.

- number of patches (values 4, 5, 6, and 7)
- randomly connected or randomly connected metapopulation
- the effect of migration pathways on the number of patches, or only
- two-step migration pathways of 4, 5, 6, and 7
- two-step migration pathways of 4, 5, 6, and 7

For every combination of these parameters, I ran 100 simulations. I calculated the number of patches at the end of 100 years for the metapopulations that were created. For each number of patches, I also ran 100 simulations of the metapopulations that were created with a randomly connected metapopulation. The results are plotted below. The results showed that increasing the number of patches generally increases the number of patches. The results also showed that increasing the number of migration pathways generally increases the number of patches. The results also showed that increasing the number of migration pathways generally increases the number of patches.



CONCLUSIONS

The results of the model indicate that, when possible, adding patches to a metapopulation is the best way to increase the number of patches. This is because adding patches increases the number of patches, which increases the number of patches. This is because adding patches increases the number of patches, which increases the number of patches.

It is worth noting that, in general, the number of patches is more important than the number of migration pathways. This is because adding patches increases the number of patches, which increases the number of patches. This is because adding patches increases the number of patches, which increases the number of patches.



Flux frumos,
dar prea metalic

LESSONS LEARNED FROM AIRWAY PRESSURE RELEASE VENTILATION (APRV)

Lew J.J. Kaplan, MD^{1,2}, Heatherlee Bailey, MD, FAAEM¹

Medical College of Pennsylvania-Hahnemann University

Departments of Surgery¹ and Emergency Medicine², Philadelphia, PA USA

INTRODUCTION

Airway Pressure Release Ventilation (APRV, a.k.a. BiPAP) has been previously demonstrated to be a useful modality in managing patients with acute lung injury (ALI) or the acute respiratory distress syndrome (ARDS). As this is a fundamentally different mode than conventional cyclic ventilation, we reviewed a single institution's experience with APRV to determine safety, complication detection, and efficacy at resolving hypoxemia and hypercarbia.

METHODS

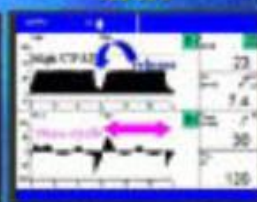
Consecutive patients transitioned from either volume or pressure targeted ventilation to APRV (Dräger Exhale 4 Pulmonary Workstation) at a University hospital surgical ICU were retrospectively reviewed. Patients initially ventilated with APRV were excluded. Initial APRV settings to correct hypoxemia ($pO_2 \leq 60$ torr vs $FiO_2 \geq 0.5$) were a P_{high} at the prior plateau pressure, a T_{high} of 6.0 sec and a T_{low} of 0.8 sec. Hypercarbic ($pCO_2 \geq 55$ torr and $pH \leq 7.3$) patients were set also T_{high} at 5.0 sec and a T_{low} of 1.0 sec. Settings were adjusted to resolve hypoxemia and hypercarbia. IRB approved abstracted data included principal diagnoses, ventilation parameters, laboratory values and ventilator associated complications. Data before and after APRV were compared using a two-tailed paired t-test or Chi-square as appropriate; significance was assessed for $p < 0.05$ (¹).

RESULTS

Demographics

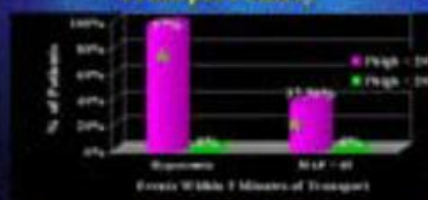


APRV

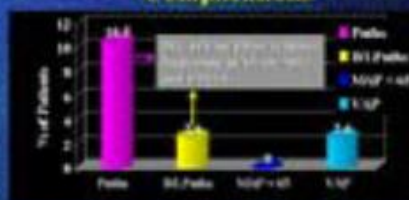


Element	Value
% Hypoxemia	88%
% Hypercarbia	12%
Time to $S_pO_2 \geq 92\%$	7 ± 4 min
Time to $FiO_2 \leq 0.6$	5.2 ± 0.9 hr
Time to $pCO_2 \leq 40$ torr	42 ± 7 min
Time to max ΔpCO_2	76 ± 12 min
Mean change in V_E	-3.3 ± 0.9 L/min ¹

Transport Safety



Complications



CONCLUSIONS

1. APRV is a safe rescue mode for hypoxemic or hypercarbic respiratory failure and requires a significantly lower V_E than conventional ventilation.
2. Decreasing release phase volumes and a rising pCO_2 are strong indicators of pneumothorax in a patient on APRV. Routine end-tidal CO_2 monitoring is recommended.
3. Preparation for safe intra-hospital transport may be keyed to the P_{high} required for oxygenation and ventilation. Patients requiring a $P_{high} > 20$ cm H_2O should be transported on the ventilator.

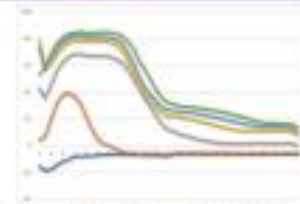


Ha-ha! E sigur,
bun revenit, tinerețe!

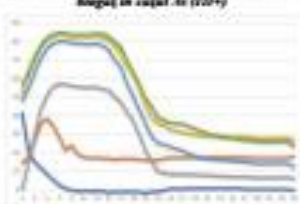
EXPERIMENTAL



În procesul acestui amestecare volumului de biogaz produs de sistemul stabilizat amestec compoziția diferită concentrația de Azotul (N_2) și (O_2). Acest experiment a fost realizat în combinație cu testul producției biogazului de scurc. Am folosit sistemul stabilizat amestec, volumul și Azotul și O_2 și N_2 în concentrația diferită. Am măsurat producția de biogaz în fiecare zi de la Azot și am obținut producția de biogaz din timpul experimentului și în timpul concentrației de Azot pentru următoarele rezultate și de asemenea am evaluat compoziția de biogaz în funcție de concentrație.

[illegible]

Eficiența inhibiției / Stimulării a producției de biogaz în cazul de (H₂O₂)



Eficiența inhibiției / Stimulării a proceselor de producție de biogaz în cazul A1 (0/+)

PERIODICITY OF QUANTUM ORBITALS

Abstract. We consider the periodicity of the eigenvalues of the Schrödinger operator $- \Delta + V$ on $\mathbb{R}^n$ with a periodic potential V . We show that the eigenvalues are periodic in the sense of Floquet theory. We also show that the eigenvalues are periodic in the sense of Floquet theory.

1. INTRODUCTION

The periodicity of the eigenvalues of the Schrödinger operator $- \Delta + V$ on $\mathbb{R}^n$ with a periodic potential V is a well-known fact. In this paper, we will show that the eigenvalues are periodic in the sense of Floquet theory. We also show that the eigenvalues are periodic in the sense of Floquet theory.

2. PERIODICITY OF THE EIGENVALUES

Let V be a periodic potential on $\mathbb{R}^n$. Then the eigenvalues of the Schrödinger operator $- \Delta + V$ are periodic in the sense of Floquet theory. We will show that the eigenvalues are periodic in the sense of Floquet theory.

3. CONCLUSION

We have shown that the eigenvalues of the Schrödinger operator $- \Delta + V$ on $\mathbb{R}^n$ with a periodic potential V are periodic in the sense of Floquet theory. We also show that the eigenvalues are periodic in the sense of Floquet theory.

[illegible]

PIYUSH VERMA, ARSHDEEP TADOK, ANAND, APRIKHA SINGH, VALLABH GUPTA, RAJESH RAO, ARSHDEEP SINGHA, A STUDY ON REMOVAL OF ARSENIC FROM INDUSTRIAL WASTE WATER, International Journal for Research in Applied Science & Engineering Technology (IJRASET), VOLUME 7, MAY 2018 [1].
¹<https://www.researchgate.net/publication/321188696> [1].

VINAYAKHAR RAO, KUNDOO KONG, AND VINAY CHONG, HEALTH EFFECTS OF CHRONIC ARSENIC EXPOSURE, J Promotes Violence Public Health, VOLUME 24, 242, SEPT. 2011 [2].
²<https://www.ncbi.nlm.nih.gov/pubmed/21616104> [2].

VINAY CHONG, BEUNGJUN YO, AND VINAYAKHAR RAO, ENVIRONMENTAL SOURCE OF ARSENIC EXPOSURE, J Promotes Violence Public Health, VOLUME 24, 242, SEPT. 2011 [3].
³<https://www.ncbi.nlm.nih.gov/pubmed/21616104> [3].

TEH YIN MEYVON, SHARON YODA LONGKATHAN, SARAYANANTH VENGKATRAM, SIBIRAMA KALPESON, THE TONKA PHAM AND HELI-2010 ARSENIC WATER TREATMENT TREATMENT ON LARVA CHARACTERISTICS, TREATMENTS AND ITS EFFECTS ON, Water Science & Technology Water Supply, VOLUME 14 pp.601, DEC. 2014 [7].

ROHINI ANDRUS PETER A. V. AND GILBERTO, ROPINAPETIT

Ronald ZARUBKA, IAN DUBOIS, ANDERSON DUBOIS, FRANCES CACIOP, THE EFFECT OF PENTAVALENT ARSENIC ON MICROORGANISMS IN ACTIVATED SLUDGE [8].

MINAKATA Y., SUZUKIKE C., CAI, CHENG M., NISHIDA K., DETEMME N., NISHIDA A., ARSENIC AND SULFIDE REMOVAL FROM AQUEOUS SOLUTIONS USING POLYMERGELS, 4TH INTERNATIONAL CONFERENCE ON ENVIRONMENTAL SCIENCE AND TECHNOLOGY, JCOT 2017, BUDAPEST, GREECE, 16 AUGUST 2017 2 SEPTEMBER 2017 [9].

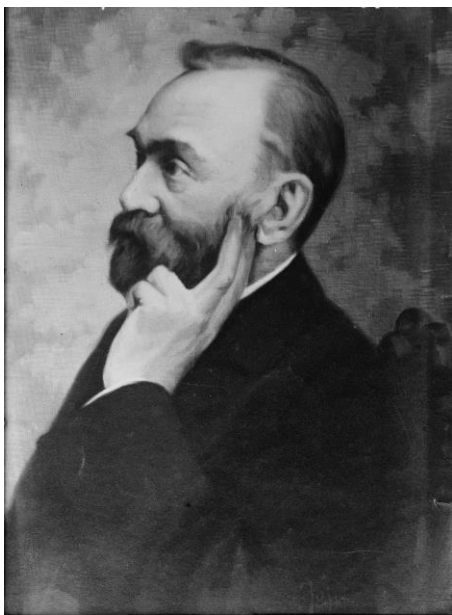
**A good poster can't make up for bad research,
but a bad poster can make good research hard to recognize!**

**Un poster bun nu poate compensa cercetările eronate,
dar un poster rău poate face o cercetare bună greu de revelat!**



Laureați ai premiilor Nobel născuți în România





Alfred NOBEL(1833-1896)

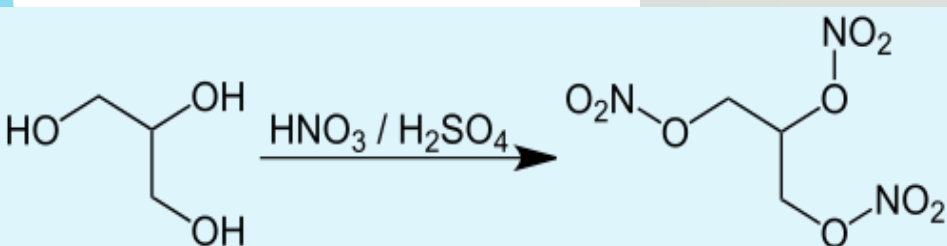
PREMIILE NOBEL

Chimie
Fizica
Medicina
Literatura
Pace
Economie



Medalia NOBEL

Nitroglicerina (trinitratul glicerinei) –
Ascanio **Sobrero** la Universitatea din Torino (1847)



Dinamita: NG + *Kieselgur*
Fulminat de mercur
1875 Blasting gelatine:

Nitroglicerină	87 – 93%
Nitroceluloză	13 – 7%





Ceremonia de acordare a Premiilor Nobel
10 DECEMBRIE



Premiul Nobel pentru fiziologie sau medicina -1974



Institutul Rockefeller New York



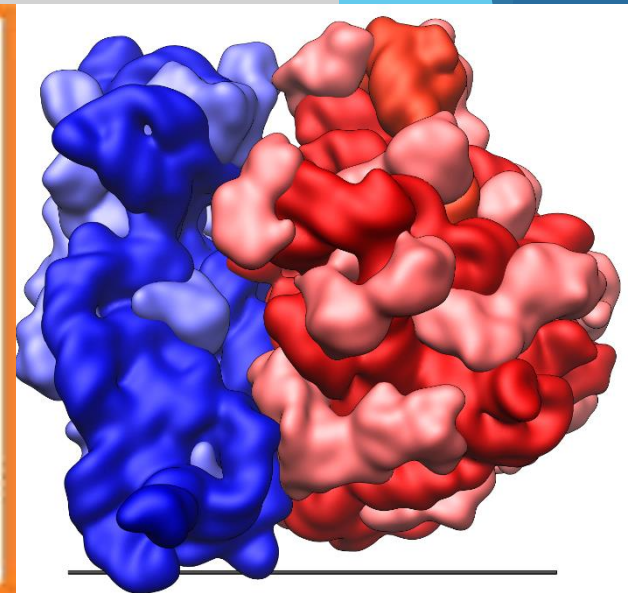
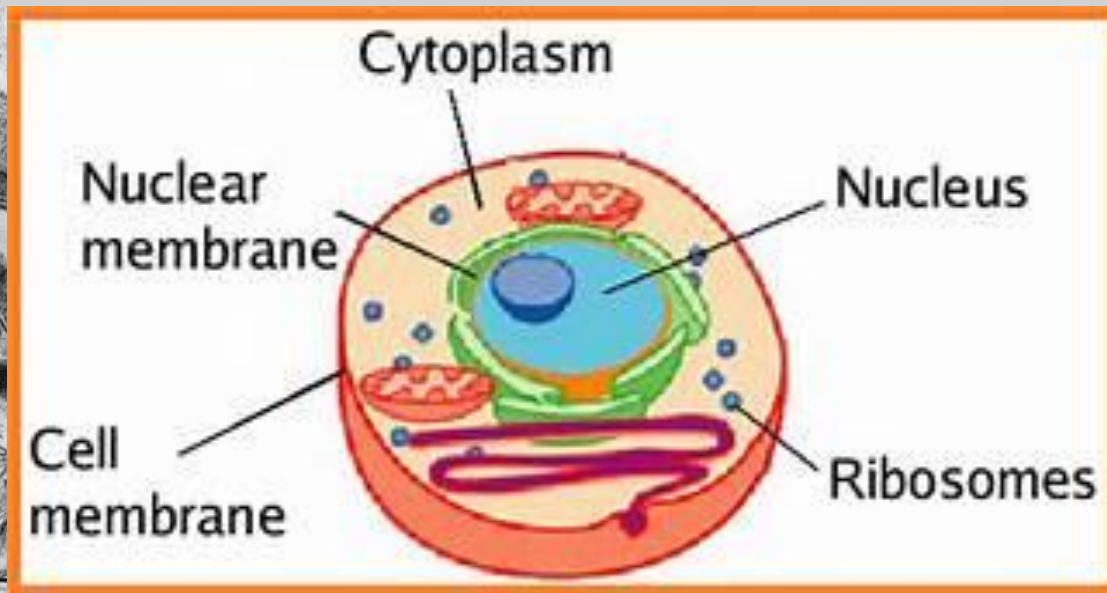
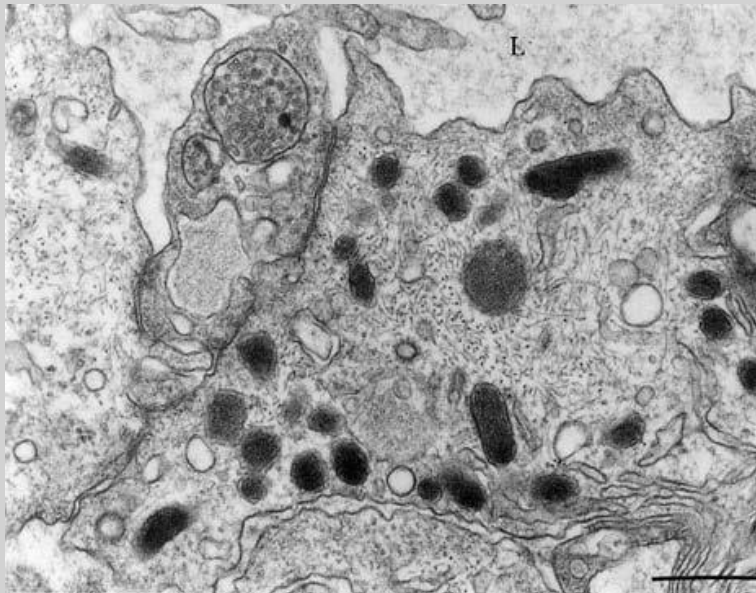
Universitatea Yale



Universitatea San Diego

În 1974 dr. Palade a primit Premiul Nobel pentru Fiziologie sau Medicină, împreună cu Albert Claude și Christian de Duve „pentru descoperiri privind organizarea funcțională a celulei care au avut un rol esențial în dezvoltarea biologiei celulare moderne”, cu referire la cercetările medicale efectuate la Institutul Rockefeller pentru Cercetări Medicale.

George E. Palade and other scientists discovered that ribosomes are the protein synthesizer in the cells and for this reason, in 1974; Palade was awarded the Nobel Prize for his great job.



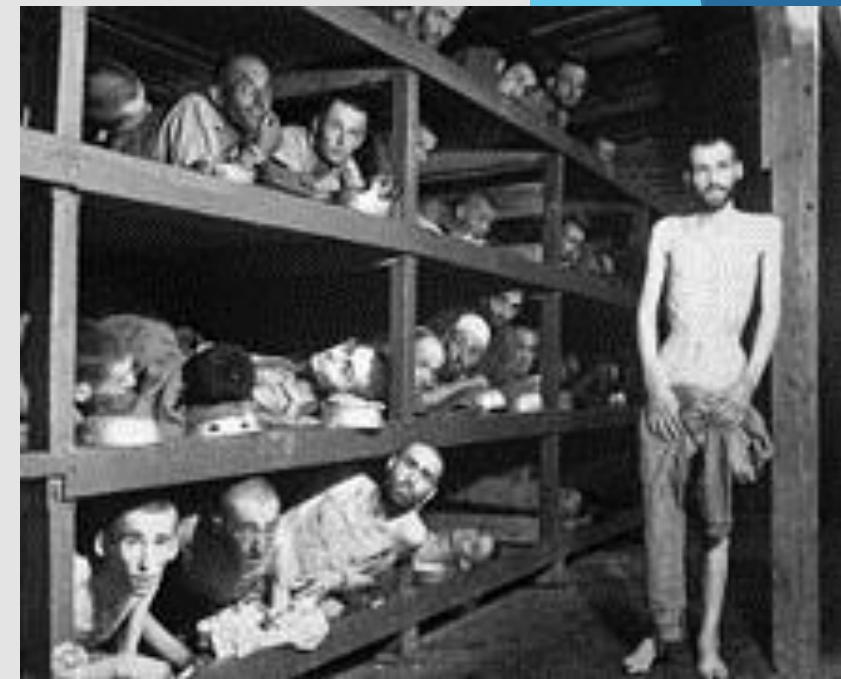
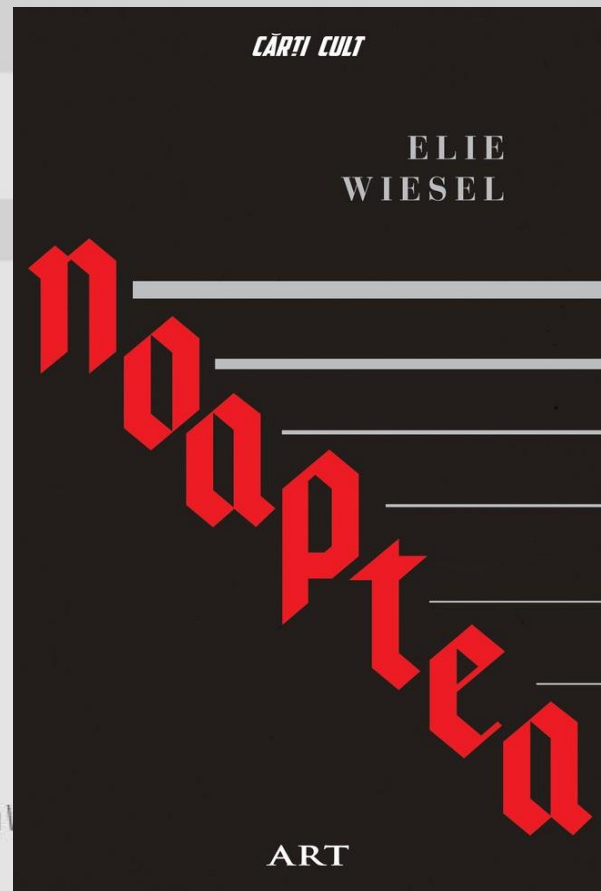
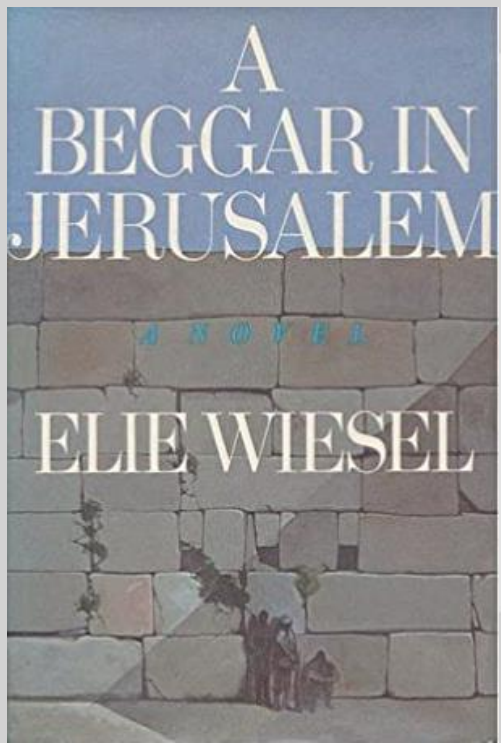
Eliezer "Elie" Wiesel
(1928 – 2016)



When Wiesel was awarded the Nobel Peace Prize in 1986, the Norwegian Nobel Committee called him a "messenger to mankind"



(Sighet – 1928)



Buchenwald - 1944

HERTA MÜLLER

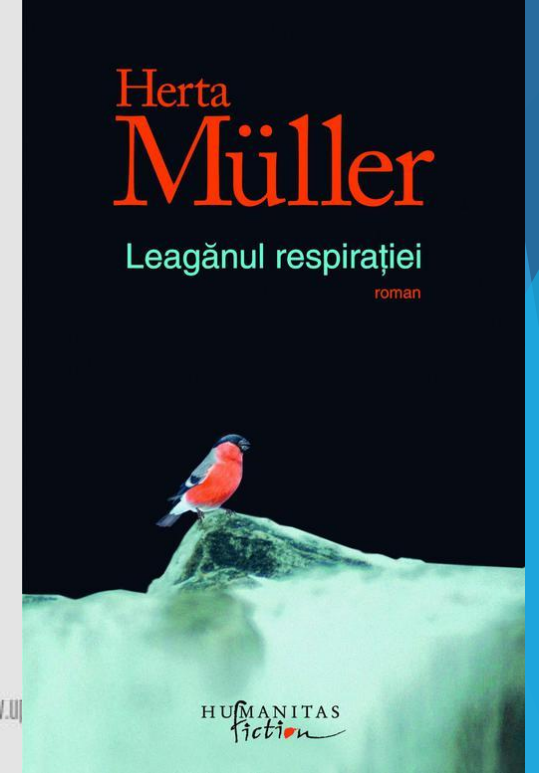
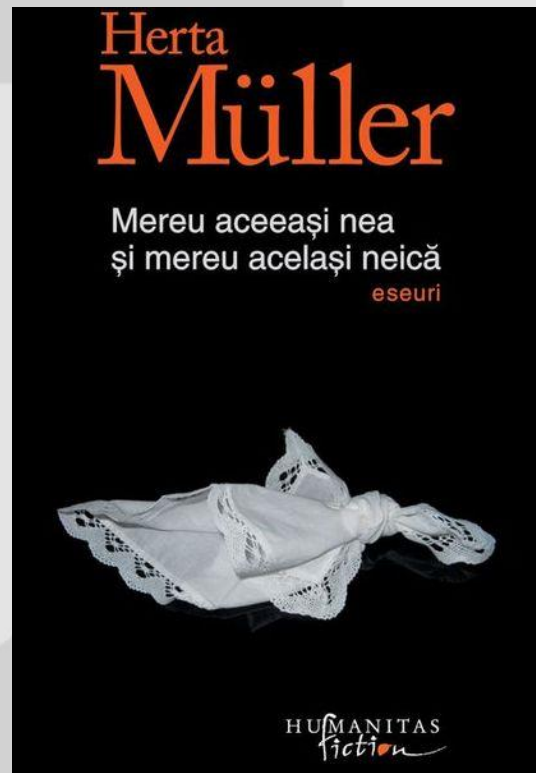
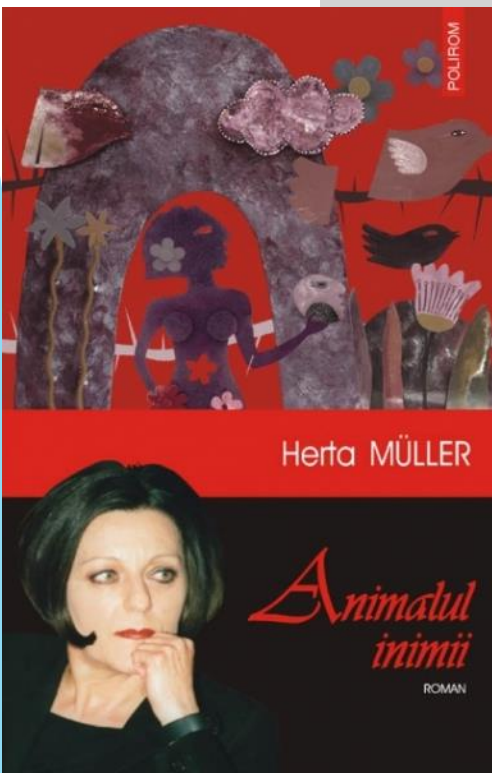


Liceul "Nikolaus Lenau" din Timisoara
Universitatea de Vest din Timisoara

Premiul Nobel pentru literatura – 2009
Motivația juriului Nobel:
"densitatea poeziei și sinceritatea prozei cu care a descris plastic universul dezrădăcinaților"



Nițchidorf - 1953



Stefan Walter Hell (ARAD - 1962)

Scoala Generala – Santana – Arad

Liceul “Nikolaus Lenau” Timisoara

Universitatea Heidelberg

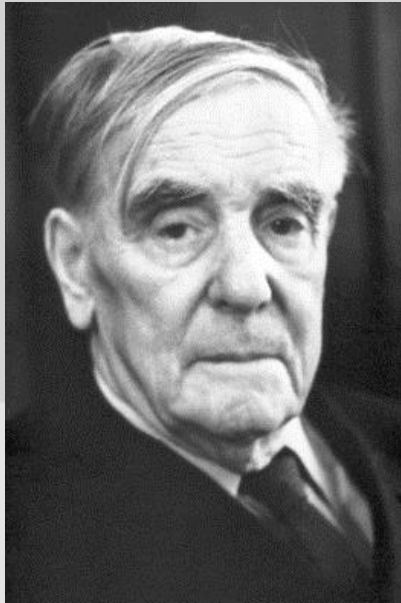


**European Molecular Biology Laboratory Heidelberg
University of Turku – Finland; Oxford University
Max Planck Institute for Biological Chemistry Heidelberg
Profesor – Heidelberg University**

**Nobel Prize in Chemistry in 2014
"for the development of super-resolved fluorescence microscopy",
together with Eric Betzig and William Moerner**

Pyotr Leonidovich Kapitsa

(Russian: Пётр Леонидович Капица, Romanian: Petre Capița (8 July 1894 – 8 April 1984)
was a leading Soviet physicist and Nobel laureate, best known for his work in low-temperature physics.

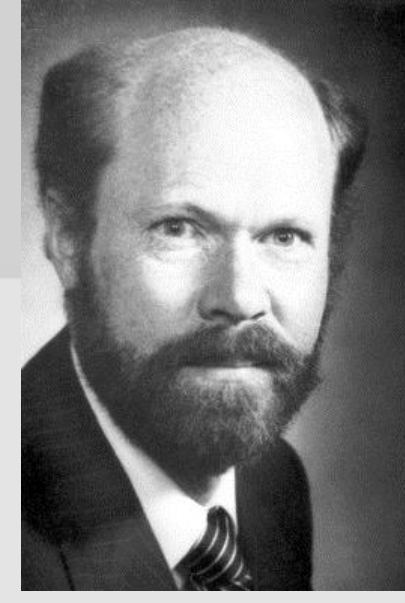


P. L. Kapitsa

Nobel Prize 1978: for his basic inventions
and discoveries in the area of
low-temperature physics



Arno Allan Penzias

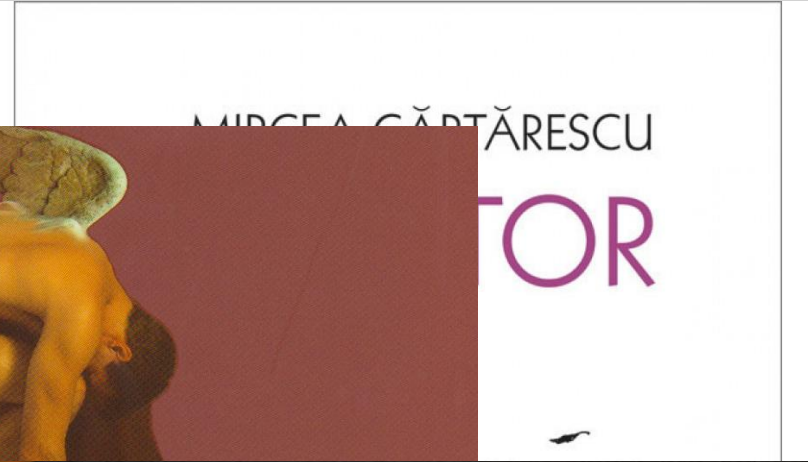
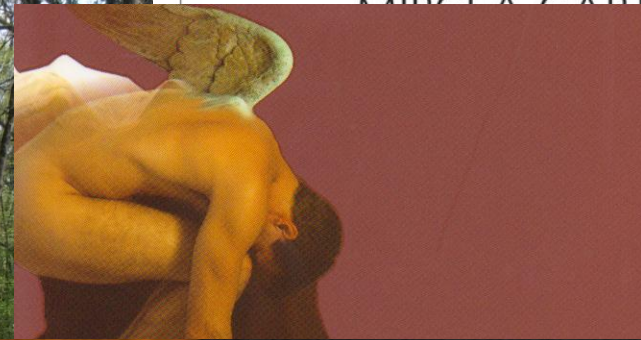
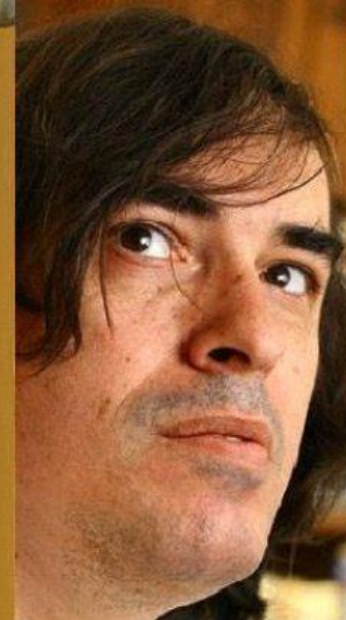
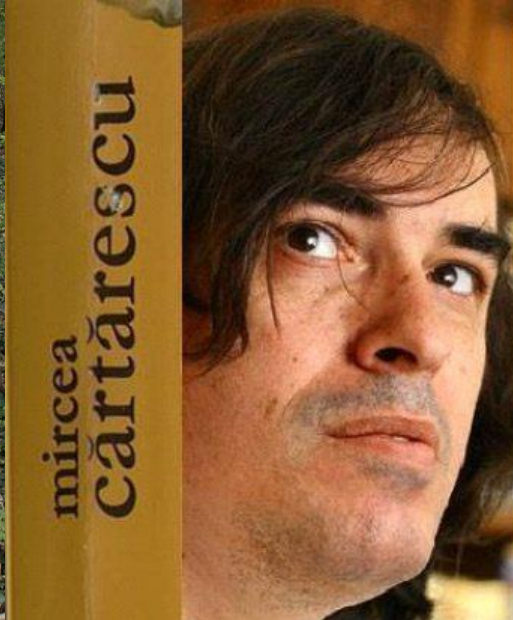


Robert Woodrow Wilson

Nobel Prize 1978: for their discovery of cosmic microwave background radiation

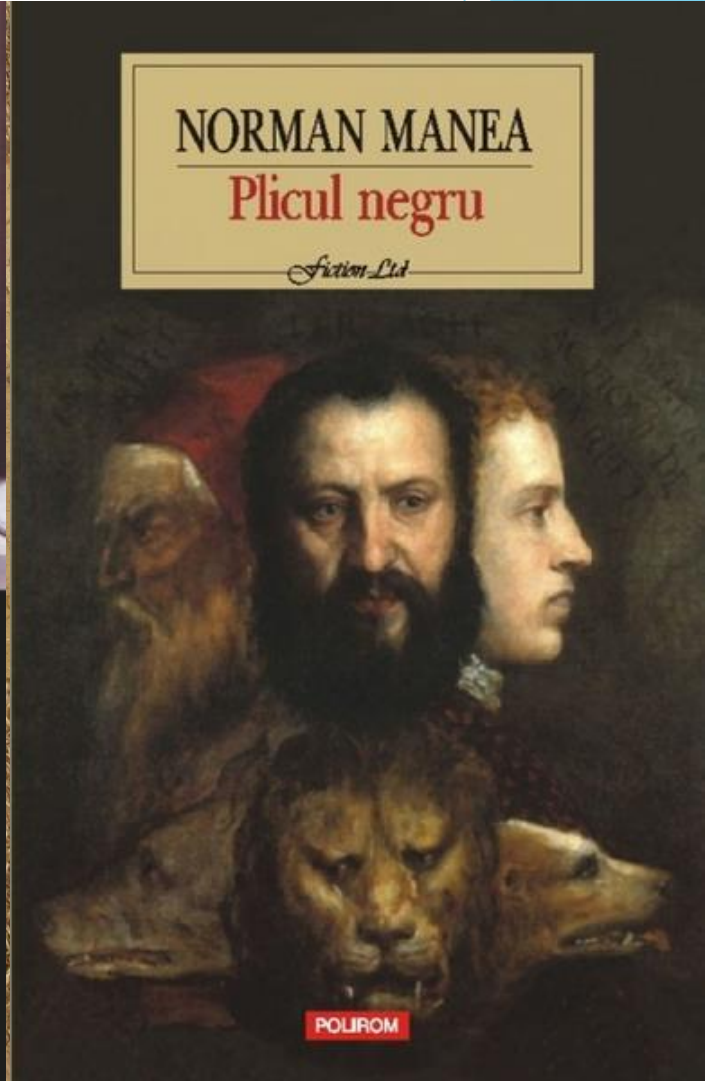
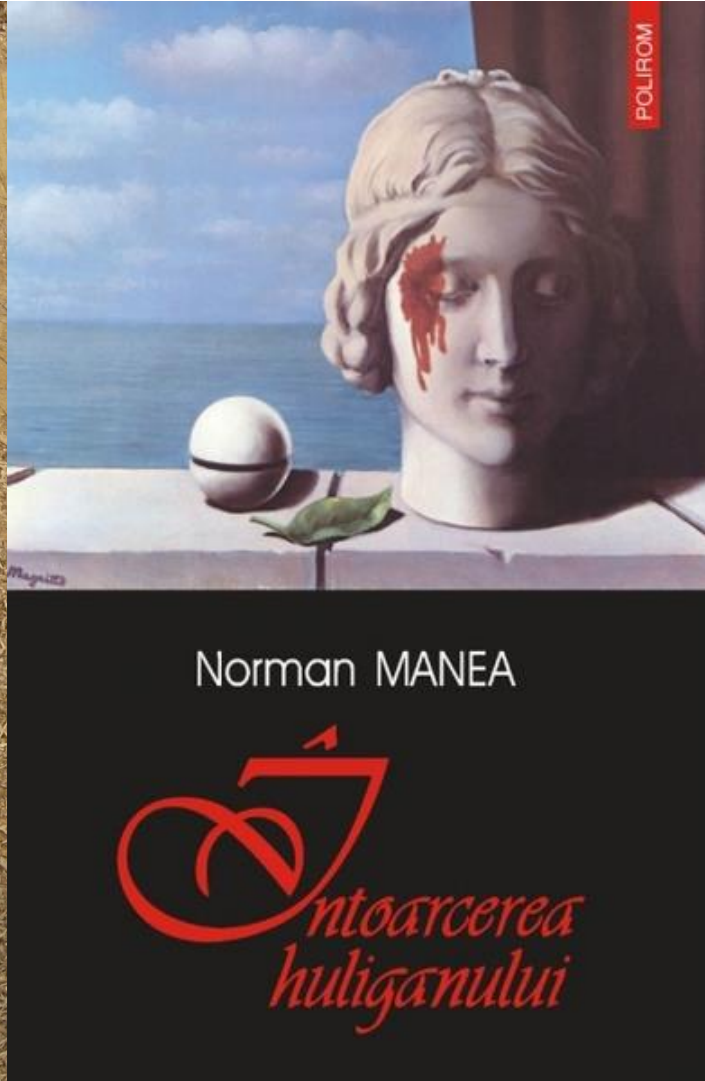


Mircea Cartarescu





Norman Manea



A photograph of a pond with large, dark green lily pads floating on the water. A single white water lily flower is in full bloom in the center-left, with its yellow stamens visible. To the right, another flower is in the process of opening. The water is dark and reflects the light.

Un semn adevărat de perfecțiune morală ni-l dă omul care petrece fiecare zi ca și cum ar fi cea din urmă a vieții, departe de aprindere, zgomote și fățarnicie.
Marcus Aurelius (121 – 180)
Către sine însuși, Editura Vestala, București, 2015, p. 127.

Mulțumesc pentru atenție!

UPT