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Background

MRG joined UGR in 1997 and for 23 years she has been involved in different research activities related to the study of sustainable and smart materials for transportation infrastructures. Specifically, national and international research projects on the use of waste materials (crumb rubber, plastics, artificial aggregates) as substitutes for virgin materials in the manufacturing of asphalt mixtures, manufacturing asphalt mixtures at low temperatures, mechanical and fatigue cracking analysis and sustainability assessment. During this period, she has been the author of more than 100 international journal papers and conference proceedings. Nowadays, she is a Full Professor at UGR, head of LabIC.UGR Research Group and Coordinator of the Civil Engineering Doctoral Studies Program. She has strong links with international research centers, industrial partners and organizations, and is involved in the development of technical specifications for HWMA in Spain and technology transfer to industry. She is also involved in different international technical committees such as Rilem, ISAP, EATA or ASEFMA.

Highlighted Research Projects

Title: **Smart Technologies & High Performance Materials for Next Railway Generation (HP-RAIL).** RTC-2017-6510-4

Supporter: Ministerio de Economía y Competitividad (RETOS-COLABORACIÓN 2017)

Participants: Universidad de Granada, Cepsa, Euroconsult, Ciesm-Intevia

Research period: Since: 01/07/2017 To: 31/12/2021

Title: **Laboratorio para Smart & Sustainable materials for transportation infrastructures.**

Supporter: Ministerio de Economía y competitividad

Participants: Universidad de Granada

Research Period: Desde: 01/09/2015 Hasta: 1/12/2017

Investigador Principal

Title: **Materiales NANO-modificados RESilientes, Sostenibles e Inteligentes para PAVimentos del futuro.** (NARESPAV)

Supporter: Ministerio de Economía y Competitividad (RETOS)

Participants: Universidad de Granada, Cepsa

Research period: Since: 01/09/2016 To: 1/12/2019

Title: **Sustainable Multi-functional Automated Resilient Transport Infrastructures.** SMARTI

Supporters: European Comision. Research and Innovation Framework Programme. Marie Sklodowska-Curie Actions. H2020

Participants: University of Nottingham, University of Granada, IFSTTAR, Università Degli Studi Di Palermo, Politecnico di Milano, Eiffage Infrastructures, Aecom, Gavin and Doherty Geosolutions, Dynatest International

Research period: Since: 01/05/2016 To: 31/08/2021

Title: **Desarrollo de Pavimentos Recicladados Sostenibles de Larga Duración.** (RTC-2015_3833-4)

Supporter: Ministerio de Economía y Competitividad (Retos)

Participants: Universidad de Granada, Sacyr

Research period: Since: 01/07/2015 To:31/12/2018

Title: **Desarrollo de nuevas técnicas y sistemas de información para la Rehabilitación**

sostenible de Pavimentos de carreteras (REPARA 2.0)
Supporters: CDTi. Ministerio de Economía y Competitividad. CDTI. CIEN
Participants: Sacyr, Repsol, Acciona, CHM, Fractalia, Cemos, Inzamac, Soliforest, UPM, Universidad de Castilla La Mancha, Universidad de Cantabria, Universidad de Granada, UPC, Universidad de Málaga, Cedex, Cartif, Ciemat y Cetro Tecnológico del metal de Murcia
Research Period: Since: 01/10/2015 To: 30/09/2019

Title: **Sustainable Pavements and Railways Initial Training Network. (SUP&R_ITN).**
Participants: European Comision. Research and Innovation VII Framework Programme. Marie Sklodowska-Curie Actions.
Participants: Universidad de Nottingham, Universidad de Granada, University College of Dublin, University of Palermo, Universidad de Huelva, Repsol, IFSTTAR, Eiffage, Sacyr, AECOM, Irish Rail.
Research Period: Since: 01/06/2013 Tp:31/12/2017

Title: **Firmes Asfálticos para Temperaturas Extremas (FATE)**
Asphalt pavements for extreme weather conditions
Supporters: Ministerio de Ciencia e Innovación (INNPACTO)
Budget: 115.180,12 €
Partners: Universidad de Granada, Dragados, Ciesm-Intevia
Research Period: Since: 30 /junio/2012 Since: 31/12/2015

Title: **Desarrollo y valorización de residuos de biomasa en la fabricación de mezclas bituminosas. IPT-2011-1577-420000.**
Biomass waste in the manufacturing of asphalt pavement
Supporters: Ministerio de Ciencia e Innovación (INNPACTO)
Budget: 142.575,30 €
Partners: Universidad de Granada, Sacyr
Research Period: Since: 01/04/2011 To: 31/12/2014

Title: **Influencia de los betunes modificados en el comportamiento mecánico de mezclas bituminosas**
The influence of modified binder in the mechanical behavior of asphalt mixtures
Supporter: Ministerio de Ciencia e Innovación (INNPACTO)
Budget: 1.170.000 €
Partners: Universidad de Granada, Consejería de Obras Públicas
Research Period: Since: 01/01/2011 To: 31/12/2013

Title: **Investigación de nuevas mezclas de baja energía para rehabilitación superficial. IPT-420000-2010-12.**
Low energy pavements for road rehabilitation works
Supporter: Ministerio de Ciencia e Innovación (INNPACTO)
Budget: 537.485 €
Partners: Universidad de Granada, Servia Canto
Research Period: Since: 01/09/2010 To: 31/12/2013

Title: **Proyecto Integrado de Investigación, Desarrollo y Demostración de Tecnologías para la aplicación de neumáticos fuera de uso en firmes de carretera resistentes a la propagación de grietas. IDI-20091076**
Research Project about the use of end of life tyres to avoid cracking propagation in asphalt pavements.
Supporter: CDTI-Ministerio de Ciencia e Innovación
Budget: 550.000 €
Partners: Universidad de Granada, Sacyr, Repsol, Ciesm, Sergeycó
Research Period: Since: 30/06/2009 To: 30/06/2013

Title: **CENIT-BIOSOS. Obtención de mezclas bituminosas en caliente obtenidas por biopolímeros**
Bitumious mixtures obtained with biopolymers
Supporter: CDTI-Ministerio de Ciencia e Innovación
Partners: Abengoa, Ecocarburantes Españoles, Acciona, Azvi, Guascor, Green Source, Carburos Metálicos, Técnicas Reunidas, Neuron, Solintel y Biópolis, Gaires, Industrias Omar y Krafft, UGR, UHU
Budget: 220.000 €
Research Period: Since: 01/06/2009 To: 01/06/2012

Title: **Nuevas Tecnologías de aplicación a las obras de Ingeniería Civil**
Advanced civil engineering technologies
Supporters: Giasa, Ferrocarriles de Andalucía, Martín Casillas, Vera, Ploder, Eiffage Infraestructuras, Sacyr, Aldesa
Budget: 720.000 €
Partners: Departamento de Ingeniería Civil (UGR)
Research Period: Since: 28/02/2008 To: 28/02/2013

Some Publications

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- Mattinzioli, T.; Sol-Sánchez, M.; Martínez-Montes, G.; Rubio-Gómez M.C. (2020). **A Critical Review of Roadway Sustainable Rating Systems**. Sustainable Cities and Society. Vol. 63
 - P. Leiva; F. Moreno-Navarro; G. Iglesias; M. C. Rubio-Gómez (2019). **Analysis of the mechanical response of asphalt materials manufactured with metallic fibres under the effect of magnetic fields**. Smart Materials and Structures. Vol.29
 - F. Moreno-Navarro; R. Tauste; M. Sol-Sánchez; M. C. Rubio-Gómez (2019). **New approach for characterizing the performance of asphalt binders through the multiple stress creep and recovery test**. Road Materials and Pavement Design. Vol 20. pp 500-520
 - L. Brasileiro; F. Moreno-Navarro; R. Tauste; J. Matos; M. C. Rubio-Gómez (2019). **Study of the feasibility of producing modified asphalt bitumens using flakes made from recycled polymers**. Journal of Construction and Building Materials. Vol.208 pp. 269-282
 - Mattinzioli, T.; Moreno-Navarro, F.; Rubio-Gómez, M.C.; Martínez-Montes, G. (2020). **LCA and cost comparative analysis of half-warm mix asphalts with varying degrees of RAP**. Pavement, Roadway, and Bridge Life Cycle Assessment. pp.354-364
 - Miguel Sol-Sánchez, Ana Jiménez del Barco Carrión, Ana Hidalgo-Arroyo, Fernando Moreno-Navarro, Leticia Saiz, María del Carmen Rubio-Gómez (2020). **Viability of producing sustainable asphalt mixtures with crumb rubber bitumen at reduced temperature**. Journal of Construction and Building Materials. Vol.265 pp. 120-154
 - Fernando Moreno-Navarro, Francisco Javier Sierra, Miguel Sol-Sánchez, M Carmen Rubio-Gómez, Manuel Castillo, Eugenio Estévez (2020). **High-Performance Sustainable Asphalt Mixtures for High-Volume Traffic Roads in Severe Climates**. Sustainability. Vol 12. Num21. pp 8765
 - F Moreno-Navarro, GR Iglesias, MC Rubio-Gómez (2019). **Encoded asphalt materials for the guidance of autonomous vehicles**. Automation in Construction. Vol 99 pp 109-113
 - Vidal, R.; Moliner, E.; Martínez, G.; Rubio, M.C. (2013). **Life cycle assessment of hot mix asphalt and zeolite-based warm mix asphalt with reclaimed asphalt pavement**. Resources, Conservation and Recycling. Vol. 74. pp. 111-114

More publications:

<https://scholar.google.com/citations?user=2gH7WIMAAA&hl=es>

Scopus