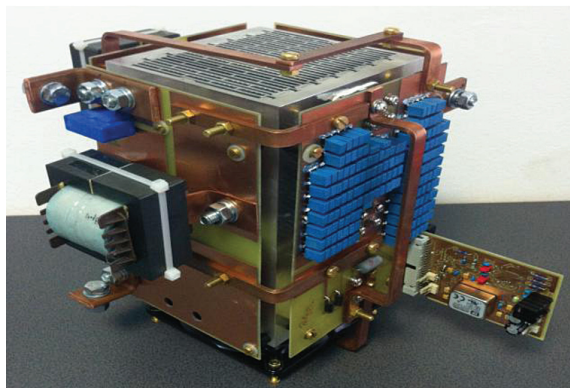


Goal of the project:

New single phase inverter configurations with reduced manufacturing costs, in particular through downsizing, with high efficiency power devices and cooling elements.

Short description of the project:

Conversion and storage through power electronics are the most important technological stages in renewable energy sources applications. In this field, the market competition is very aggressive, so all research efforts are oriented to obtain high efficiency at lower manufacturing costs. New circuit configurations, with multiple power inputs (for mixing more renewable energy sources), implemented with high performance power devices, are the specific ways in attending this goal. The project objectives were related to these aspects, completed with all necessary laboratory tests, including EMC.



Project implemented by:

DIEHL GmbH, Germany.

Implementation period:

October 2012- present

Main activities:

- Design new, multiple input, power converter structure;

- Replacing the discrete power components with high performance power IGBT module;
- Design and implement an adapted force cooling structure;
- Redesign and implement local filters in order to meet the EMC standard limits;
- Design a new shielded plastic cover in order to minimise the dimensions and weight;
- Extended performance and EMC tests.

Results:

New power converter configurations for renewable energy sources.

Fields of interest:

DC-DC, AC-DC, AC-AC static power conversion; Renewable energy conversion and storage control; Microgrids power converters and their control; Automotive power conversion systems.

Financed through/by:

DIEHL GmbH, Germany.

Research team:

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Research centre:

Research Centre for Smart Energy Conversion and Storage

Applicability and transferability of the results:

Renewable energy and automotive industries.

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