**Design, Manufacturing and testing of a 5kW PEM fuel cell system.**

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In the present seminar an overview of simulation, design, manufacturing and testing of a 5kW PEM fuel cell system is presented. The stack of the PEMFC system is of metallic type. The seminar is composed of three subsections: 1-     The section in which the conceptual design, detailed design and simulation of different components in the stack like gas flow fields, cooling flow field, forming of metallic bipolar plates and laser cutting and welding of metallic bipolar plates are discussed.2-     The section in which the manufacturing and assembly issues like: bipolar plate forming and laser welding, sealing issues…are presented.3-     In section 3 the results of different tests performed on the components of the stack as well as the fuel cell system such as: results of corrosion behavior and contact resistance tests of the developed coating applied on the bipolar plates, electrochemical tests performed on the fuel cell stack are discussed.