

A Unique Design of Endplates and Clamping Mechanisms for Miniature/Micro/Portable DMFC Stacks

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This program deals with the novel design of endplates and clamping mechanisms for miniature/micro/portable fuel cell stacks. The intent of the project is to effectively use the endplates as a clamping mechanism for fuel cell stacks as well as a storage device for fuels. The proposed design is to utilize lightweight and/or porous materials, such as porous metals and honeycomb structured materials, for endplates. The design will result in significant reductions in both the weight and the dimensions of the targeted fuel cells. The finite element method (FEM) will be used to simulate the stress/strain distributions, and deflections of the proposed design of the endplates. In addition, a coordinate measuring machine (CMM) will be utilized to experimentally measure the overall deflection of the endplates. The measurement results will be used to guide the FEM calculations.