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Numerical Analysis of Transport Phenomena for the Design of the Ejector in a PEM Fuel Cell ELHAM HOSSEINZADEH, MASOUD JABBARI, MASOUD ROKNI, Department of Mechanical Engineering, Technical University of Denmark, Nils Koppels Allé, 2800 Kgs. Lyngby, Denmark — In the present study, Computational Fluid Dynamics (CFD) technique is used to design an ejector for anode recirculation in a specific automotive PEMFC system. A CFD model is firstly established and tested against well-documented and relevant solutions from literature, and then used to different ejector geometries under different working conditions. Results showed that one ejector with the optimized geometry cannot cover the required recirculation in the entire range of the current, and having two ejector for different range of currents is a new proposed alternative, in which the system can take a better advantage of ejector for recirculation purpose.

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