# Effect of process conditions on the performance in a proton exchange membrane fuel cell

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Three-dimensional computational fluid dynamics provides theoretical analysis with overall reaction of proton exchange membrane fuel cells (PEMFCs). In conjunction with the performance of a single cell, local current density profiles as well as average current density are determining factors and also play a key role in affecting the GDL flooding, depending on relative humidity and fluid dynamics in channel. With the various flow-field configurations and operating conditions, better single cell has been suggested by comparing with the basic case. Flow dynamics and electrochemical reactions have been computed using the Star-CD software. We have compared the polarization curves and local results for some strategy for the better performance of PEMFC.