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Radiation heat transfer effect in solid oxide fuel cell: Application of the Lattice Boltzmann Method

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Abstract : the radiation effect within the solid anode, electrolyte, and cathode SOFC layers problem has been investigated in this paper. Energy equation is solved by the Lattice Boltzmann method (LBM). The Rosseland method is used to model the radiative transfer in the electrodes. The Schuster-Schwarzschild method is used to model the radiative transfer in the electrolyte. Without radiatve effect, the found results are in good agreement with those published. The obtained results show that the radiative effect can be neglected.

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