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multiphase flow in complex geometries it is a discrete computational method based upon the boltzmann equation the lattice boltzmann equation lbe is a minimal form of boltzmann kinetic equation which is meant to simulate the dynamic behaviour of fluid flows without directly solving the equations of continuum fluid mechanics the lattice boltzmann method has been widely used as a solver for incompressible flow though it is not restricted to this application more generally it can be used as a compressible navier stokes solver albeit with a restriction that the mach number is low while that restriction in this lecture i start with an introduction to the lattice boltzmann method lbm reasons for its popularity and challenges this book introduces the lattice boltzmann method lbm a numerical technique for solving fluid dynamics problems it covers the kinetic theory the boltzmann equation the lattice arrangements the boundary conditions the diffusion equation and the applications of lbm a computational model based on the lattice boltzmann method lbm was developed to consider the capillary pressure inside the pemfc and to analyze the exact geometries of the gdls which were

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