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Jiahong Wu* (jiahong.wu@okstate.edu), Department of Mathematics, 401 Mathematical Sciences, Stillwater, OK 74078. *The 2D magnetohydrodynamic (MHD) equations with partial dissipation.*

The magnetohydrodynamic (MHD) equations model electrically conducting fluids in the presence of a magnetic field such as plasmas and liquid metals. They are a combination of the Navier-Stokes equations (with Lorentz force) and the electromagnetic equations. The global (in time) regularity problem concerning the MHD equations have garnered considerable interest recently. This talk focuses on recent developments on the 2D MHD equations with partial dissipation. When there is only partial dissipation, the global regularity problem can be extremely difficult. We report very recent global regularity results for two partial dissipation cases: the MHD equations with no magnetic diffusion and the MHD equations with no velocity dissipation. (Received September 02, 2015)