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Dipendra Regmi* (regmid@farmingdale.edu), Farmingdale State College, SUNY, 2350 Broadhollow Rd, Farmingdale, NY 11735. *Global regularity for the 2D magneto-micropolar equations with partial dissipation.*

We study the global existence and regularity of classical solutions to the 2D incompressible magneto-micropolar equations with partial dissipation. The magneto-micropolar equations model the motion of electrically conducting micropolar fluids in the presence of a magnetic field. When there is only partial dissipation, the global regularity problem can be quite difficult. We are able to single out three special partial dissipation cases and establish the global regularity for each case. As special consequences, the 2D Navier-Stokes equations, the 2D magnetohydrodynamic equations, and the 2D micropolar equations with several types of partial dissipation always possess global classical solutions. This is a joint work with J. Wu. (Received August 04, 2016)