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Dipendra Regmi* (dregmi@math.okstate.edu), 401 MSCS, Oklahoma State University, Stillwater, OK 74078. *Global Regularity Results for 2D Magnetohydrodynamic Equations*. Preliminary report.

We study the global regularity of classical solutions to the 2D incompressible magnetohydrodynamic (MHD) equations with horizontal dissipation and horizontal magnetic diffusion. We establish a global bound for the horizontal component in any Lebesgue space L^{2r} with $1 \leq r < \infty$ and the bound grows no faster than the order of $\sqrt{r \log r}$ as r increases. In addition, we establish a conditional global regularity in terms of the $L_t^2 L_x^\infty$ -norm of the horizontal component and the global regularity of a slightly regularized version of the aforementioned MHD equations. This is a joint work with C. Cao and J. Wu. (Received September 11, 2012)