

1096-35-1035

Dipendra Regmi* (dregmi1@uco.edu), Department of Mathematics and Statistics, University of Central Oklahoma, Edmond, OK 73034. *A Study on the Global Regularity for Two-dimensional Magnetohydrodynamic Equations.*

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 components in any Lebesgue space L^{2r} with $1 \leq r < \infty$ and grows no faster than the order of $\sqrt{r \log r}$ as r increases. By applying the logarithmic bound for horizontal components together with the Besov Space technique, we prove the global regularity of the MHD equations with horizontal dissipation and horizontal magnetic diffusion. This is a joint work with C. Cao, J. Wu, and X. Zheng. (Received September 12, 2013)