

1096-35-2295

Kazuo Yamazaki* (kyamazaki@math.okstate.edu), 401 Mathematical Sciences Building,
Department of Mathematics, Oklahoma State University, Stillwater, OK 74078. *On the global
well-posedness of N-dimensional generalized MHD system in anisotropic spaces.*

We follow the approach of Iftimie (1999, Rev. Mat. Iberoamericana, 15, 1-36) to study the N-dimensional generalized magnetohydrodynamics (MHD) system with fractional Laplacians as dissipative and diffusive terms in various anisotropic spaces. In particular we obtain small initial data results with anisotropic Sobolev space type norms for which depending on the power of the fractional Laplacians, we may decrease the regularity index in many directions to zero or even negative, in the expense of increasing the rest. Similar results in anisotropic Besov type spaces are also obtained. We also discuss recent developments on the stochastic Navier-Stokes equations and MHD system. (Received September 17, 2013)