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Jiahong Wu* (jiahong@math.okstate.edu), Department of Mathematics, Oklahoma State University, 401 Mathematical Sciences, Stillwater, OK 74078. *Regularity criteria for the generalized MHD equations.*

This talk reports regularity criteria for the generalized magnetohydrodynamics (MHD) equations, a system of equations resulting from replacing the Laplacian $-\Delta$ in the usual MHD equations by a fractional Laplacian $(-\Delta)^\alpha$. These criteria impose assumptions on the velocity field u alone and sharpen a result of He and Xin. In addition, these criteria also apply to the incompressible Navier-Stokes equations and improve some of the sharpest results that are currently available. (Received August 17, 2006)