GLOBAL WELLPOSEDNESS TO THE INCOMPRESSIBLE MHD EQUATIONS WITH SOME LARGE INITIAL DATA

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Abstract. In this paper, we mainly study the global wellposedness for the \( n \)-dimensional homogeneous and nonhomogeneous incompressible magnetohydrodynamic equations in the critical Besov spaces. By fully using the advantage of weighted function generated by heat kernel and Fourier localization technique, we first get the global wellposedness for the homogeneous incompressible MHD equations with initial data under a nonlinear smallness hypothesis. It is amazing that we can exhibit an initial data satisfying that nonlinear smallness assumption, despite each component of the initial data could be arbitrarily large. Then, as an application of our global well-posedness, we also extend our result to the inhomogeneous incompressible MHD equations.


Keywords and phrases: Global wellposedness, MHD equations, Besov space.

REFERENCES


