Some results of the magneto-hydrodynamic system in Besov spaces

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Abstract:
In this talk, we present the global well-posedness of solutions to the Cauchy problem of incompressible magneto-hydrodynamics system for large initial data in homogeneous Besov space $\dot{B}^{\frac{2}{p}-1}_{p,r}(\mathbb{R}^2)$ for $2 < p < \infty$ and $1 \leq r \leq \infty$. In the case spatial dimension $n \geq 3$ we establish the global well-posedness of solution for small data and the local one for large data in Besov space $\dot{B}^{\frac{n}{p}-1}_{p,r}(\mathbb{R}^n)$, $1 \leq p < \infty$ and $1 \leq r \leq \infty$ or $1 \leq r < \infty$ (in the local case). Moreover, we also prove the weak-strong uniqueness of solutions with data in $\dot{B}^{\frac{n}{p}-1}_{p,r}(\mathbb{R}^n) \cap L^2(\mathbb{R}^n)$ for $\frac{n}{2p} + \frac{2}{r} > 1$.

References: