

Applications of knots in MHD

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We will discuss the followings well-known problems:

1. To find-out a lower estimation of magnetic energy in the perfect liquid conductive medium by means of topological invariants.
2. To estimate a growth of the mean magnetic field in the perfect liquid conductive medium with the given random distribution of the velocity (α -effect).
3. To estimate a spectrum of the magnetic field in the Kolmogorov turbulence theory.
4. To study MHD shell-models.

The standard approach toward a solutions of the problems above is based of the helicity integral = asymptotic Hopf invariant. We will discuss a high-order helicity integral. The new integral gives more exact solution of the problems.