

Abstract Submitted  
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**Magnetic Helicity and Dynamos in Galaxies**<sup>1</sup> ETHAN VISHNIAC,  
American Astronomical Society, AMIR JAFARI, none — Magnetic helicity is a  
robustly conserved topological invariant, even in the presence of turbulence. It pro-  
duces a back reaction which suppresses kinematic dynamos. In shearing and rotating  
objects, like galaxies, turbulence produces a magnetic helicity flux, aligned with the  
axis of the system. The resulting accumulation of magnetic helicity dominates over  
the kinetic helicity in one eddy turnover time and drives a dynamo which can grow  
much more rapidly than a conventional kinematic dynamo. We will discuss the  
implications for the early history of galactic magnetic fields and their saturation  
strengths.

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