

Abstract Submitted  
for the DPP20 Meeting of  
The American Physical Society

**Consequences of Flux Diffusion in a Liner Compression Fusion Reactor** MERITT REYNOLDS, General Fusion — General Fusion is developing a fusion reactor based on compression of a self-organized spherical tokamak plasma by a liquid metal liner. To reach conditions for energy production the DT plasma will be compressed from meter to decimeter size in milliseconds. Due to resistivity of the liquid metal, magnetic flux will diffuse from the plasma volume into the liquid during the compression. This soaking of magnetic flux into the wall will be enhanced by flux shearing in the converging quasi-incompressible liquid metal flow. The soaking of poloidal flux in particular has significant consequences for the plasma including decrease of edge  $q$  and  $q$  shear and degradation of major radius compression. Two-dimensional MHD simulation of plasma compression by a resistive liquid metal liner is used to explore attainment of fusion conditions in the presence of flux diffusion.

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Date submitted: 29 Jun 2020

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