

Abstract Submitted
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Design aid diagram based on dimensionless variables of reactor-like FRCs¹ S.A. COHEN, Princeton Plasma Physics Laboratory — A variety of FRC reactor designs are being discussed within the US MFE community. These differ in choices of fuel, heating method, and operational mode, resulting in widely varying device sizes (r) and magnetic fields (B) and different demands on stability and energy confinement. Based on considerations of dimensionless parameters descriptive of stability and energy confinement, we place present and proposed FRCs in the r - B parameter space and show the boundaries that indicate achievement of various reactor-like parameters. In FRC devices operating above $\log r(\text{cm}) + 0.8 \log B(\text{G}) = 4.6$, reactor-like stability and energy-confinement issues can be simultaneously addressed. Dimensional parameters and criteria for pulse length requirements are also described for reactor-like FRCs.

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S.A. Cohen
Princeton Plasma Physics Laboratory

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