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The Centrifugal Mirror Fusion Experiment (CMFX) Program[1]
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— A new research program to study the viability of the centrifugal mirror as a thermonuclear fusion confinement scheme is presented. The Centrifugal Mirror Fusion Experiment (CMFX) is being constructed at the University of Maryland to azimuthally rotate a mirror-shaped magnetized plasma to supersonic speeds. The rotation will (a) create a centrifugal force that confines plasma axially; (b) make for a velocity shear that stabilizes instabilities; and (c), at high Mach number, open up a direct pathway to DT fusion energy by exponentially suppressing axial electron heat loss. The proposed work aims for parameters $n = 10^{18}/m^3$, $B = 0.5\ T$, voltage=0.1 MV, radius=0.4 m, plasma length 1.3 m, pulse length 15 ms, and is predicted to achieve $T_e = 0.5\ keV$, $T_i = 0.5\ keV$, and a triple product of $10^{17}\ keV - s/m^3$. Deuterium plasmas are expected to produce fusion neutrons at rates of approximately $200/cm^3/s$. The engineering design, planned diagnostics, and experimental plans are discussed.

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