

Abstract Submitted
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A Deuterium-Deuterium Inertial Electrostatic Confinement Fusion System¹ JULIAN SENNETTE, EMERYS PEETS, GREG SITZ, University of Texas at Austin — Due to the paywalls associated with national defense, fusion research remains widely inaccessible within academia. Using a redesigned model of the Farnsworth-Hirsch Fusor, undergraduates at the University of Texas at Austin have designed and assembled a relatively low-cost vacuum chamber capable of deuterium-deuterium inertial electrostatic confinement fusion with the potential for high neutron yields. Additionally, a robust and low-cost fusion detection system capable of confirming 587 kV gamma rays produced by activated silver was also developed using a combination of a photomultiplier tube and silicon photomultipliers attached to large plastic scintillators. Calibration measurements were made using an AmBe neutron source to characterize the photon sensitivity of the detection systems relative to the half life of activated silver for comparative analysis to our assembled fusor to determine reliability and practicality. Future studies include the characterization of the emitted neutron energy spectrum and further determination of neutron yields.

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