

Abstract Submitted  
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**A high repetition rate plasma focus for neutron interrogation applications**<sup>1</sup> BRIAN BURES, MAHADEVAN KRISHNAN, COLT JAMES, ROBERT MADDEN, Alameda Applied Sciences Corp, WOLFGANG HENNIG, DIMITRY BREUS, STEPHEN ASZTALOS, KONSTANTIN SABOUROV, XIA, LLC, STEPHEN LANE, UC Davis, USA — A fast pulsed neutron source enables identification and ranging of contraband nuclear material using time-of-flight separation of the probe neutron pulse from the fission induced emission quanta. Alameda Applied Sciences Corporation has demonstrated a 1 Hz plasma focus neutron source that uses an impedance matching transformer to better couple the power from the driver to the dynamic pinch load. For a 24 kV primary charge, the system produces a 61 kA peak current with a neutron yield up to  $5 \times 10^5$  neutrons/pulse at 1 Hz. Experiments are described in which induced 845keV gamma emission from iron targets (by 2.45MeV DD neutrons) was separated (by time of flight) from the 20-30ns probe neutron pulses. Monte Carlo simulations are used to optimize the concept for a fieldable system.

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