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(I) A Prototype Compact Accelerator-based Neutron Source (CANS) for Canada

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The Canadian scientific community lost their local source of neutron beams for materials research on March 31st 2018, due to the closure of the National Research Universal reactor at Chalk River National Laboratories. Furthermore, the dwindling global supply of neutrons has made it increasingly difficult for local scientists to access neutron beams. There is a growing demand for the development of new generation facilities in Canada to address the drought which the local neutron user community is experiencing. A compact accelerator based neutron source (CANS) offers an intense, pulsed source of neutrons with a capital cost significantly lower than spallation sources. Research and development for a prototype CANS at the University of Windsor is currently underway. This facility will serve three major beam lines including, a neutron science station, a boron neutron capture therapy station and a PET isotope station. An outline of the proposed parameters of the facility and the design strategy for the target-moderator-reflector assemblies for the neutron science and BNCT stations will be presented.

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