

Abstract Submitted  
for the MAR17 Meeting of  
The American Physical Society

**New muon source possibilities at the Spallation Neutron Source**

G. J. MACDOUGALL, University of Illinois at Urbana-Champaign, T. J. WILLIAMS, Oak Ridge National Laboratory — In September, 2016, a workshop was held at Oak Ridge National Laboratories (ORNL) to discuss possibilities for the construction of a dedicated  $\mu$ SR facility at the Spallation Neutron Source (SNS) to complement the existing neutron scattering program. The meeting was motivated by ongoing design activities for the Second Target Station at the SNS and several reports in recent years showing strong support for a muon source in the United States. Attendees included representatives from all existing  $\mu$ SR facilities, members of the university-based research community, and experts at ORNL familiar with local accelerator and source designs. In this talk, I will summarize main conclusions from that meeting, which includes consideration of a number of potential muon target positions in the existing or planned accelerator facilities at the SNS. Of particular interest is one source design that uses existing laser stripping technologies to direct a short, tunable proton pulse from the linear accelerator toward a dedicated target. This design is capable of creating a pulsed beam of muons with ideal and variable timing resolution and an intensity many times what is available at the current generation of  $\mu$ SR facilities.

Gregory MacDougall  
University of Illinois at Urbana-Champaign

Date submitted: 11 Nov 2016

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