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The Compact Pulsed Hadron Source: A Facility Report

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Abstract

A university-based facility for neutron scattering—the first one in China—has entered the mid-term construction stage, representing a major thrust of the Compact Pulsed Hadron Source Project at Tsinghua University. The project aims at providing R&D opportunities for education, instrumentation, and industrial applications to the small but growing neutron and accelerator communities in China. We report the progress in the design, fabrication, and engineering of the 16kW, 13-MeV proton accelerator system (ion source, RFQ, DTL), the neutron target station (Be-target, CH₄ moderator), and neutron beamlines (imaging, SANS) since the project started in 2010. The neutron-scattering platform also complements the larger, national projects of reactor- and spallation-based neutron sources, CARR & CSNS currently in construction-to-commissioning stages, in user training/outreach and development/testing of devices and components. CPHS shares with the international communities the common interests in advancing the science and technology of accelerator-driven neutron sources and has actively participated in exchange and collaborative programs.

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