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Development of High-Pressure Sample Environment Equipment for Neutron Scattering at CSNS

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High-pressure sample environments are essential for neutron scattering studies under extreme conditions. At the China Spallation Neutron Source (CSNS), a range of high-pressure loading systems are currently under development, including gas-driven and hydraulic equipment with target pressure ranges exceeding 600 MPa. These systems are designed to support in-situ structural and magnetic measurements. For research on gas storage and adsorption materials, a gas adsorption analyzer is being integrated to enable real-time monitoring of adsorption behavior. In addition, a Paris–Edinburgh press coupled with a low-temperature cryostat is under construction, aiming to support high-pressure neutron experiments down to 150 K. These systems will be gradually deployed across multiple beamlines, with continued efforts toward automation and compatibility to better serve the growing neutron user community.

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