

Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Effects of Applied Electric Field on the Dynamics of Nano-Confined Water¹ SOULEYMANE DIALLO, EUGENE MAMONTOV, Spallation Neutron Source, NOBUO WADA, Nagoya University — We present quasi-elastic neutron scattering measurements of the proton diffusion in water confined in silica nanopores (FSM), with average pore diameters of 16 Å and 39 Å. The measurements were performed on the high resolution backscattering silicon spectrometer (BaSiS) at the Spallation Neutron Source (SNS). From the data, we determine the self diffusion constants, and the translational and rotational relaxation times, as a function of temperature from 300 K down to 200 K. We observe a significant slowing down of the proton diffusion as the temperature is lowered, and a remarkable effect of confinement of the translational motion. Recent results on the effects of applied electrical field on these dynamical processes will be reported.

¹Work at ORNL and SNS is sponsored by the Scientific User Facilities Division, Office of Basic Energy Sciences, US DOE.

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Date submitted: 11 Nov 2011

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