

Abstract Submitted
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Effects of electric field on the proton dynamics in hydrated lysozyme SOULEYMANE DIALLO, Quantum Condensed Matter Science Division, Oak Ridge National Laboratory, OAK RIDGE NATIONAL LABORATORY COLLABORATION — Neutron scattering is an ideal probe to study condensed matter. In particular, quasi-elastic incoherent neutron scattering (QENS) is a spectroscopic method suitable for the studies of diffusive motions occurring on the pico- to nano-second time scale. This scale matches very well with certain molecular relaxation processes in soft condensed matter. In this talk, I will present our recent QENS results on the dynamics of water molecules confined inside nanoporous silica pores and around lysozyme surface. In these measurements, we have explored the effects of static electric field on the diffusivity of water molecules. We observe a clear impact of electric field on the water molecules confined by the silica substrate, but there is comparatively little or no effect of the field on water around lysozyme. A possible scenario and implications will be discussed.

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Spallation Neutron Source

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