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## Structure and relaxation dynamics in porous systems: A neutron scattering view

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Fluids play a main role in determining the final structural and transport properties in several solvated systems like hydraulic binders[1], hydrogels[2], organogels[3] and colloids in general. Thanks to their peculiar neutron-sample interaction, neutrons are the elective probe to study many hydrogen-rich systems. For this reason, neutron scattering techniques are unique in defining porous matrix topology at the nanoscale and relaxation properties in the ps-ns regime. This presentation reviews few examples where neutron scattering, even in time-resolved mode, could be of great advantage for the material intrinsic understanding and improvement.

1. F. Ridi, M. Tonelli, E. Fratini, S.-H. Chen, P. Baglioni, *Langmuir* 34, 2205–2218 (2018). DOI: 10.1021/acs.langmuir.7b02304
2. D. Noferini, A. Faraone, M. Rossi, E. Mamontov, E. Fratini, P. Baglioni *J. of Phys. Chem. C* 123, 19183-19194 (2019). DOI: 10.1021/acs.jpcc.9b04212.
3. H.D. Santan, C. James, I. Martínez, E. Fratini, C. Valencia, M.C. Sánchez and J.M. Franco, *Industrial Crops and Products* 121, 90-98 (2018). DOI: 10.1016/j.indcrop.2018.05.012

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