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Project title: Neutron scattering studies of nanocellulose-based materials	
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Abstract (approx. 200 words)**:** Nanocellulose is of high interest for the development of fossil-free materials but despite a vast body of literature, the fundamental characteristics of nanocellulose itself remains poorly understood. The intrinsically hygroscopic nature will affect the properties of all materials based on nanocellulose and is currently a significantly limiting factor for realistic applications as high relative humidities can have a detrimental effect on the material properties. The myriads of complex interactions between nanocellulose and water remains unsolved and needs to be clarified to utilize nanocellulose to its full potential. In this work, we have utilized quasielastic neutron scattering for the investigation of the dynamics of isotropic nanocellulose foams in a dry and hydrated state. Already at a dry state we could observe rotational motions that we attribute to the surface groups of the nanocellulose, and we could follow the increased confinement of these motions upon hydration with D_2O to efficiently separate the individual contributions from nanocellulose and water Additionally, we could access the hydration water dynamics when using H_2O as the hydrating medium, from which the diffusion of water to cellulose surface could be detected. The clarification of the hydration-dependent rotational dynamics of nanocellulose as well as the nanocellulose-water interactions provide valuable input for the continuing development of nanocellulose-based materials.	
Key words: quasielastic neutron scattering, nanocellulose foams, hygroscopic, hydration-dependent	