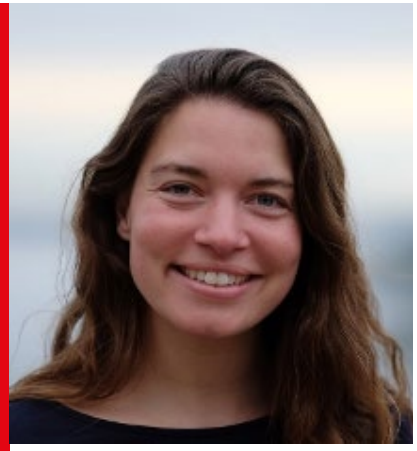
EPFL PHYSICS & MATERIALS COLLOQUIUM

Surface Physics of Soft Materials



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Friday
November 28
14:15
CM1 3

or on zoom :
https://epfl.zoom.us/j/64067979202

Hydrogels are three-dimensional networks of hydrophilic polymers swollen in solvent with tissue-like elastic moduli (about 1 to 100 kPa). High water content hydrogels (>90% water) are often described as “slippery,” yet their lubrication mechanisms remain unclear. Inspired by work from Spencer, Tran, Creton, and others, we designed a friction-measuring sample environment (“tribometer”) on the Liquids Reflectometer at Oak Ridge National Laboratory’s Spallation Neutron Source to quantify polymer density at hydrogel surfaces during compression and sliding. Early results suggest that interfacial polymer density increases with contact pressure and sliding velocity, providing new physical insights to guide design of robust, lubricious materials and coatings for biomedical applications.

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