1167-35-130 **Silja Haffter*** (`silja.haffter@epfl.ch`), EPFL SB, Station 8, 1015 Lausanne, Switzerland.
Almost everywhere smoothness for the supercritical SQG equation.

The surface quasigeostrophic equation (SGQ) is a 2d physical model equation which shares many of the essential difficulties of 3d fluid dynamics: in the supercritical regime for instance, it is not known whether or not smooth solutions blow-up in finite time. In this talk, I will propose a nonempty notion of "suitable weak solution" for the supercritical SQG equation and prove that those solutions are smooth outside a compact set (away from t=0) of quantifiable Hausdorff dimension; in particular they are smooth almost everywhere. I will draw analogies with the partial regularity results for the Navier-Stokes equation (which inspired the result) and highlight the additional difficulties introduced by the L^∞-supercriticality of the problem and the "lack of compactness" of the classical local energy inequality. This is a joint work with Maria Colombo (EPFL). (Received March 03, 2021)