1167-76-335 **Zachary Bradshaw**, **Igor Kukavica** and **Wojciech S Ożański*** (ozanski@usc.edu). *Global existence of weak solutions to the 3D incompressible Navier-Stokes equations for intermittent initial data in half-space.*

We will discuss a new result in the regularity theory of the 3D incompressible Navier-Stokes equations on the half-space $\mathbb{R}^3_+$. Namely, given a divergence-free initial condition $u_0 \in L^2_{loc}(\mathbb{R}^3_+)$ that belongs to a certain weighted space, we show existence of global-in-time weak solutions of the incompressible Navier-Stokes equations in the half-space $\mathbb{R}^3_+$. The weighted space allows non-uniformly locally square integrable functions that grow at spatial infinity in an intermittent sense. The space for initial data is built on cubes whose sides R are proportional to the distance to the origin and the square integral of the data is allowed to grow as a power of R. This is first result in the half-space $\mathbb{R}^3_+$ that gives global existence of weak solutions and allows growth at spatial infinity. We will discuss how this result can be obtained using a new a priori estimate and a stability result in the weighted space, as well as new pressure estimates. We will also discuss how one can obtain regularity of such weak solutions, up to the boundary, for (x,t) satisfying $t > c_1|x|^2 + c_2$, where $c_1, c_2 > 0$, for a large class of initial data u_0, with c_1 arbitrarily small. (Received March 09, 2021)