Qian Wang* (qwang@math.sunysb.edu). Control of local null geometry by rough CMC initial data.

I will provide an $L^\infty$ type estimate for deformation tensor within certain timespan in terms of 0-order Bel-Robinson energy and volume radius of the initial slice in CMC spacetime, which gives us a lower bound of null radius of injectivity in terms of initial $L^2$ curvature and volume radius, and proves that harmonic radius is locally stable in certain timespan depending on the initial $L^2$ curvature. This result does not rely on any assumption on second fundamental form and lapse function. (Received September 22, 2009)