1146-35-164 **Marcelo M Disconzi*** (marcelo.disconzi@vanderbilt.edu), 1326 Stevenson Center, Vanderbilt University, Nashville, TN 37240, and **Jared Speck** (jared.speck@vanderbilt.edu), 1326 Stevenson Center, Vanderbilt University, Nashville, TN 37240. *The relativistic Euler equations: Remarkable null structures and regularity properties.*

We will discuss some recent results concerning the problem of regularity and shock formation for relativistic fluids, with focus on the relativistic Euler equations. Highlighting some "hidden" geometric aspects of the problem, we will present a new formulation of the relativistic Euler equations that exhibits remarkable properties. This new formulation is well-suited for various applications, in particular for the study of stable shock formation, as we will discuss. Furthermore, using the new formulation, we establish a local well-posedness result showing that the vorticity and the entropy of the fluid are one degree more regular than one might naively expect. (Received January 19, 2019)