1160-35-237 **Kris K Jenssen*** (hkjenssen@gmail.com) and **Charis Tsikkou**. *Unbounded multi-d compressible Euler flows.*

In 1942 Guderley showed that the Euler system describing the flow of an ideal polytropic gas admits solutions in which a symmetric shock wave collapses at the origin and reflects a new outgoing spherical shock. The solutions in question blow up in amplitude and describe purely radial (quasi-1-d), self-similar flows.

In this talk we first report on recent work showing that Guderley's solutions provide bona fide weak solutions of the original, multi-d Euler system.

On the other hand, these same solutions include regions of zero pressure due to vanishing temperature; these solutions are therefore of border-line physicality.

We demonstrate that the Euler model admits other types of radial, self-similar solutions which blow up in amplitude, and with an everywhere strictly positive pressure field. This demonstrates that the mechanism of wave focusing is sufficiently strong, on its own, to generate unbounded amplitudes.

Joint work with Charis Tsikkou (University of West Virginia). (Received August 10, 2020)