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Warszawa, Poland. *On ill-posed hyperbolic systems of Euler type.*

We consider several modifications of the Euler system of fluid dynamics including the Savage-Hutter system describing granular flows and the pressureless variant driven by non-local interaction repulsive-attractive and alignment forces in the space dimension  $N = 2, 3$ . The second type of models arise in the study of self-organisation in collective behavior modelling for animals and crowds. We will concentrate on showing that there exist infinitely many weak solutions to these problems. Our approach is based on the method of convex integration. We also consider the class of dissipative solutions satisfying, in addition, the associated global energy balance (inequality). We identify a large set of initial data for which the problem admits infinitely many dissipative weak solutions. The talk is based on the following results:

[1] J.A. Carrillo, E. Feireisl, P. Gwiazda, and A. Swierczewska Gwiazda. Non-uniqueness of weak solutions for Euler systems with non-local interactions, submitted

[2] E. Feireisl, P. Gwiazda, and A. Swierczewska Gwiazda. On weak solutions to the 2d Savage-Hutter model of the motion of a gravity driven avalanche flow, arXiv:1502.06223, to appear in Comm. in Partial Differential Equations (Received September 20, 2015)