1159-35-68 **Florin Catrina*** (catrinaf@stjohns.edu), St. John's University, 8000 Utopia Pkwy, Queens, NY 11439. *An energy balance identity for nonlinear ODE's.*

We discuss implications of an energy balance identity on properties of solutions for some second order ODE's with Hamiltonian structure. Variational proofs of existence of solutions for semilinear elliptic PDE's are often based on compactness of embeddings between the appropriate functional spaces. In the case of critical or super-critical nonlinearities, the loss of compactness is manifested in the concentration of minimizing sequences at critical points or at singularities of the potential. This identity is able to capture the loss of compactness for radial functions in some special cases of rotationally symmetric PDE's. (Received July 29, 2020)