1145-35-1332   **Stefan Krömer*** (`skroemer@utia.cas.cz`), ÚTIA AV ČR, Pod Vodárenskou věží 4, 18208 Praha 8, Czech Rep, and **Jan Valdman**. *Injective nonlinear elasticity: recent developments and new ideas for a computational approach.*

I will present some recent developments in the variational theory of nonlinear elasticity with a global injectivity constraint preventing self-interpenetration of the elastic body, the Ciarlet-Necas condition, in the presence of higher order derivatives in the internal elastic energy density. Such terms can appear either for modelling purposes, i.e., for non-simple materials, or as regularization term with a small coefficient converging to zero. The main focus of the talk are penalization terms replacing the Ciarlet-Necas condition as a soft constraint, recovering the original condition in a limiting sense while being more suitable for numerical purposes. (Received September 21, 2018)