1172-74-308 **Vakhtang Putkaradze*** (vakhtang.putkaradze@atco.com), 5302 Forand St SW, Calgary, Alberta T3E 8B4, Canada. *Variational methods for description of active porous media.*

Many biological organisms are comprised of deformable porous media, with the additional complexity of an embedded muscle. Using geometric variational methods, we derive the equations of motion of a for the dynamics of such an active porous media. The use of variational methods allows incorporating both the muscle action and incompressibility of the fluid and the elastic matrix in a consistent, rigorous framework, with no need to guess the balance of forces and torques. We then derive conservation laws for the motion, perform numerical simulations and show the possibility of self-propulsion of a biological organism due to particular running wave-like application of the muscle stress. This is joint work with F. Gay-Balmaz and T. Farkhutdinov (Received August 31, 2021)