1163-65-803 **Sascha Timme*** (`timme@math.tu-berlin.de`). *Catastrophes in Elastic Tensegrity Frameworks.*
Elastic tensegrity frameworks are structures made from rigid bars and elastic cables. These structures can be effectively modelled using the theory of elasticity and energy minimization. In particular, they always position themselves in a state of (local) minimal energy. A change of control parameters of the framework can yield a catastrophe, a discontinuous jump in the location of local minima. In this talk we develop an algebraic relaxation of the aforementioned problem and determine a semi-algebraic set, the catastrophe set, which governs the possibility of a catastrophe happening. We then show how to compute it using numerical nonlinear algebra. This is joint work with Alex Heaton. (Received September 13, 2020)