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**Elisenda Feliu\***, Universitetsparken 5, 2100 Copenhagen, Denmark. *Injectivity, multiple zeros and multistationarity in reaction networks.*

Polynomial dynamical systems are widely used to model and study real phenomena. In biochemistry, they are the preferred choice for modelling the concentration of chemical species in reaction networks with mass-action kinetics. These systems are typically parametrized by many (unknown) parameters.

A goal is to determine the positive steady states of the system, which are the positive solutions to a parametrized system of generalized polynomial equations. In recent years, methods from computational algebra have been developed to understand these solutions, but our knowledge is still limited.

In the talk I will present a new method, based on so-called injectivity, to preclude or assert that multiple positive solutions exist. The results apply to generalized polynomials and variables can be restricted to the linear, parameter-independent first integrals of the dynamical system.

The content of the talk is based on the paper: Feliu E (2014) "Injectivity, multiple zeros and multistationarity in reaction networks", Proceedings of the Royal Society A, 471, 20140530. (Received August 10, 2015)