

The time-dependent von Kármán plate equation as a limit of 3d nonlinear elastodynamics

In this talk we discuss the asymptotic behaviour of solutions of three-dimensional nonlinear elastodynamics in a thin plate, as the thickness of the plate tends to zero. Under appropriate scaling and smallness assumptions on the applied force and the initial values, we prove existence of strong solutions for large times and sufficiently small thickness and we show their convergence to solutions of the time-dependent von Kármán plate equation.

This is a joint work with Helmut Abels and Stefan Müller.