

Derivation and simulation of thermoelastic Kirchhoff plates

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Within the research of the Cluster of Excellence PhoenixD it is of interest to simulate thermoelastic materials on thin optical components which have the structure of Kirchhoff-Plates. This leads to a bothsided nonlinear coupled 4th order system of the heat equation and the elasticity equations. The standard finite element method (FEM) is a powerful tool for the numerical solution of boundary value problems of elliptic PDEs. In this talk I will present a derivation of a 2nd order thermoelastic system on Kirchhoff-Plates following the method of Rafetseder and Zulehner. Further I will summarize some theoretical statements and show our FEM simulation results.

References:

[1] <https://doi.org/10.1137/17M1118427>

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