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Computational Mathematics Seminar Series

Babuska's paradox in linear and nonlinear bending theories**Soeren Bartels, University of Freiburg, Germany**

Professor of Mathematics

Digital Media Center 1034
March 05, 2024 - 03:45 pm**Abstract:**

The plate bending or Babuska paradox refers to the failure of convergence when a linear bending problem with simple support boundary conditions is approximated using polygonal domain approximations. We provide an explanation based on a variational viewpoint and identify sufficient conditions that avoid the paradox and which show that boundary conditions have to be suitably modified. We show that the paradox also matters in nonlinear thin-sheet folding problems and devise approximations that correctly converge to the original problem.

Speaker's Bio:

Short bio:

- PhD 2001 in Numerical Analysis at University of Kiel, Germany
- Postdoc at University of Maryland, College Park, USA
- Nonpermanent Professorship at University of Bonn, Germany
- Since 2012 Professor for Applied Mathematics at University of Freiburg, Germany
- Monography "Numerical Methods for Nonlinear PDEs", Springer, 2015

