Stochastic Galerkin Methods for Partial Differential Equations, 5.0 credits

Stochastic Galerkin Methods for Partial Differential Equations, 5.0 hp

Third-cycle education course

MAI0129

Department of Mathematics

Valid from: First half-year 2023

Approved by
Head of Department

Approved

Registration number

Contents

Basic Concepts
Introduction
Representation of random fields via spectral expansions:
PDE Theory

Grading

One-grade scale

Course literature

GX08: Gottlieb, Xiu, Galerkin Method for Wave Equations with Uncertain Coefficients, Commun. Comput. Phys., Vol. 3, No. 2, pp. 505-518, 2008.
PIN15: Pettersson, Iaccarino, Nordström, Polynomial Chaos Methods for Hyperbolic Partial Differential Equations, Springer, 2015.
TPME11: Tuminaro, Phipps, Miller, Elman, Assessment of Collocation and Galerkin Approaches to Linear Diffusion Equations with Random Data, International Journal for Uncertainty Quantification, Vol. 1, No. 1, pp. 19-33, 2011.
XK02: Xiu, Karniadakis, Modeling uncertainty in steady state diffusion problems via generalized polynomial chaos, CMAME, Vol. 191, pp. 49274948, 2002.