

**GITTEREICHTHEORIE (SYGE)**

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**ÜBERSICHT DER HAUPTVORTRÄGE UND FACHSITZUNGEN**  
 (Hörsaal HG2-HS5)

**Hauptvorträge**

SYGE 1.1	Di	14:00	(HG2-HS5)	<b>Random matrix theory and (lattice) QCD</b> , <a href="#">Tilo Wettig</a>
SYGE 1.2	Di	14:45	(HG2-HS5)	<b>Random matrices in mathematics</b> , <a href="#">Thomas Kriecherbauer</a>
SYGE 1.3	Di	15:30	(HG2-HS5)	<b>Strings in <math>SU(N)</math> Gauge Theory</b> , <a href="#">Harvey B. Meyer</a>
SYGE 1.4	Di	16:45	(HG2-HS5)	<b>Topological structure of the QCD vacuum probed via overlap fermions</b> , <a href="#">Yoshiaki Koma</a>
SYGE 1.5	Di	17:30	(HG2-HS5)	<b>Instantons and Monopoles on and off the Lattice</b> , <a href="#">Falk Bruckmann</a>
SYGE 1.6	Di	18:15	(HG2-HS5)	<b>The Higgs particle from gauge theories on a five-dimensional orbifold</b> , <a href="#">Francesco Knechtli</a>

**Fachsitzungen**

SYGE 1	<b>Gittereichtheorie</b>	Di 14:00–19:00	HG2-HS5	SYGE 1.1–1.6
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# Fachsitzungen

– Hauptvorträge –

## SYGE 1 Gittereichtheorie

Zeit: Dienstag 14:00–19:00

Raum: HG2-HS5

**Hauptvortrag** SYGE 1.1 Di 14:00 HG2-HS5  
**Random matrix theory and (lattice) QCD** — •TILO WETTIG —  
 Inst. f. Physik, Universität Regensburg  
 –Vortragsdauer 40 Min–

**Hauptvortrag** SYGE 1.2 Di 14:45 HG2-HS5  
**Random matrices in mathematics** — •THOMAS KRIECHERBAUER  
 — Inst. f. Mathematik, Ruhr-Universität Bochum

In this talk a survey over some of the results in random matrix theory which have recently been obtained in the mathematics community will be presented. Hereby we will mainly focus on results regarding local eigenvalue statistics such as nearest neighbor spacings and distributions of largest and smallest eigenvalues near hard and soft edges.

–Vortragsdauer 40 Min–

**Hauptvortrag** SYGE 1.3 Di 15:30 HG2-HS5  
**Strings in  $SU(N)$  Gauge Theory** — •HARVEY B. MEYER — DESY,  
 Platanenallee 6, D-15738 Zeuthen

–Vortragsdauer 40 Min–

–Pause von 16.15 bis 16.45 Uhr–

**Hauptvortrag** SYGE 1.4 Di 16:45 HG2-HS5  
**Topological structure of the QCD vacuum probed via overlap fermions** — •YOSHIKI KOMA — DESY, 22603 Hamburg

Overlap fermions, which have exact chiral symmetry on the lattice,

provide us with a powerful tool to investigate the topological structure of the QCD vacuum through lattice Monte Carlo simulations. We present our recent numerical results of such lattice simulations, especially, focusing on the localization properties of the topological charge density and of the Dirac eigenmodes. We then discuss a possible picture of the QCD vacuum.

–Vortragsdauer 40 Min–

**Hauptvortrag** SYGE 1.5 Di 17:30 HG2-HS5  
**Instantons and Monopoles on and off the Lattice** — •FALK BRUCKMANN — Instituut-Lorentz for Theoretical Physics, Leiden University, P.O. Box 9506, NL-2300 RA Leiden

–Vortragsdauer 40 Min–

**Hauptvortrag** SYGE 1.6 Di 18:15 HG2-HS5  
**The Higgs particle from gauge theories on a five-dimensional orbifold** — •FRANCESCO KNECHTLI — CERN, Physics Department, TH Division

The Standard Model of elementary particles is based on the existence of the Higgs particle, which is responsible for the electroweak symmetry breaking but has not been detected in experiments so far. The next large accelerator LHC might discover the Higgs and possibly indicate extensions of the Standard Model. Among these there are theories in which the Higgs is a relic of an unobserved extra dimension. We investigate the simplest of these models, a gauge theory in five dimensions, on the lattice. Peculiar orbifold boundary conditions are imposed in the extra dimension. We present simulation results for the mass spectrum of the theory.