Topics for Theses

The work in my group is focussed on mathematical aspects of random matrix theory and its applications in field theory and statistical mechanics. Consequently, on the one hand there are more mathematical topics concerning eigenvalue statistics, the theory of orthogonal polynomials or group integrals. On the other hand, I am interested in applications e.g. in two-dimensional Coulomb gases, counting statistics of Fermions in a trap, or quantum field theory with chemical potential. Two references for introductory literature are given below, see also my research interests.

If you are interested in writing a thesis within my group (BSc/MSc/PhD) please contact me by email or in person to make an appointment.

Literature:

Introduction to Random Matrices - Theory and Practice,
Giacomo Livan, Marcel Novaes, Pierpaolo Vivo,
SpringerBriefs in Mathematical Physics, volume 26 (2018), Springer, 112 pages,
https://arxiv.org/pdf/1712.07903.pdf

Quantum Signatures of Chaos,
Fritz Haake,
Springer, Heidelberg 2010, 573 pages