

Dr. Francesco Intravaia, D. Reiche

Fluctuation-induced Phenomena: Information

1. The lectures will take place on Tuesday from 13:00 to 15:00 in the seminar room NEW 14 1'13. Participation to the lectures is highly encouraged. The class will be held in english.
2. The lectures do not follow a specific textbook. Instead, a script will be provided that summarizes with detail the material presented during the lecture. The full script is available online (on this page) and is password protected (the password is communicated via email later). The script might be updated during the lecture with minor corrections. Major updates are notified during the lecture.

Specific aspects that are covered in the lectures are excellently presented in various books. Some of these books are:

- Nico G. van Kampen, *Stochastic processes in Physics and Chemistry*, Elsevier, 1992
- Ulrich Weiss, *Quantum Dissipative Systems*, World Scientific Publishing Company, Singapore, 2008.
- Leonard Mandel and Emil Wolf, *Optical Coherence and Quantum Optics*, Cambridge University Press, 1995
- Crispin Gardiner and Peter Zoller, *Quantum Noise*, Springer, 1991
- Heinz-Peter Breuer and Francesco Petruccione, *The Theory of Open Quantum Systems*, Oxford University Press, 2002
- Claude Cohen-Tannoudji, Jacques Dupont-Roc, and Gilbert Grynberg, *Atoms and Photons*, John Wiley and Sons Inc., 1998
- John David Jackson, *Classical Electrodynamics*, John Wiley and Sons Inc., New York, 1975.
- Peter Milonni, *The Quantum Vacuum*, Academic Press, 1994
- Diego Dalvit et al. (Eds.), *Casimir Physics*, Springer Lecture Notes on Physics Vol. 834, 2011
- Kimball A. Milton, *The Casimir Effect: Physical Manifestations of Zero-Point Energy*, World Scientific Publishing, 2001

3. The lectures are accompanied by weekly tutorials where the solutions of the problem sheets and questions about the lectures are discussed. The problem sheets can be downloaded from

Fluctuation-induced phenomena/Fluktuations-induzierte Phänomene ↷.

[<https://top.physik.hu-berlin.de/teaching/summer-semester-2019/fluctuation-induced-phenomena>]

The tutorials take place on Tuesday from 15:00 to 17:00 in the seminar room NEW 14 1'10 (a most convenient time can be exceptionally arranged if needed). Depending on the number of participants, further tutorials will be arranged.

4. During the tutorial the students will be asked to present on the board the solution of the full exercise or part of it. The actual presentation of the solutions takes place according to the

"Dortmund system" where students present their solutions to their fellow students in class under the supervision of the tutor(s). At the beginning of each exercise class, the students mark down which solutions they can present. At the end of the lecture period, the students are required to have marked down at least 50% of the total number of tasks. Successful participation in the tutorials (more than 50% of the total number of tasks) can allow to obtain the ECTS-points associated with this class.

5. The ECTS-points can be also obtained on a day after the end of the lecture during a session where the students will have to answer questions on the topics discussed during the lecture.
6. For those who want to have a mark there will be an exam on a day after the end of the lecture. The exam usually consists of a short talk (15-20 mins maximum) on a scientific paper, followed by 20-30 mins questions on the talk and/or on the topics of the lecture.