Module: Elective Advanced Lectures: Theoretical Physics

Module No.: physics70c

Course: Introduction to Conformal Field Theory (T)

Course No.: physics7513

Category	Type	Language	Teaching hours	CP	Semester
Elective	Lecture with exercises	English	2+1	5	WT/ST

Requirements for Participation:

Preparation:
Quantum Field Theory

Form of Testing and Examination:
Requirements for the examination (written or oral): successful work with the exercises

Length of Course:
1 semester

Aims of the Course:
Conformal symmetry represents a natural extension of Poincaré symmetry and plays an important role in many areas of theoretical physics. The aim of this course is to become acquainted with the basics of Conformal Field Theory (CFT) and to get an idea of applications in different contexts.

Contents of the Course:
CFT in two and higher dimensions, example CFTs, conformal bootstrap

Recommended Literature:
- Joshua D. Qualls, "Lectures on Conformal Field Theory", https://arxiv.org/abs/1511. 04074
- Marc Gillioz, "Conformal Field Theory for Particle Physicists", https://arxiv.org/abs/ 2207.09474
- Slava Rychkov, "EPFL Lectures on Conformal Field Theory in D >= 3 Dimensions", SpringerBriefs in Physics (2016), https://arxiv.org/abs/1601.05000
- Giuseppe Mussardo, "Statistical Field Theory", Oxford University Press (2020)
- P. Di Francesco, and P. Mathieu, and D. Senechal, "Conformal Field Theory", Graduate Texts in Contemporary Physics, Springer (1997)
- Ralph Blumenhagen, and Erik Plauschinn, "Introduction to Conformal Field Theory", Lect.Notes Phys. 779 (2009)