بژوهشگاه دانش‌های بنیادی (مرکز تحقیقات فیزیک نظری و ریاضیات)
IPM
INSTITUTE FOR RESEARCH IN FUNDAMENTAL SCIENCES

School of PHYSICS

Crash Course on

Numerical Holography

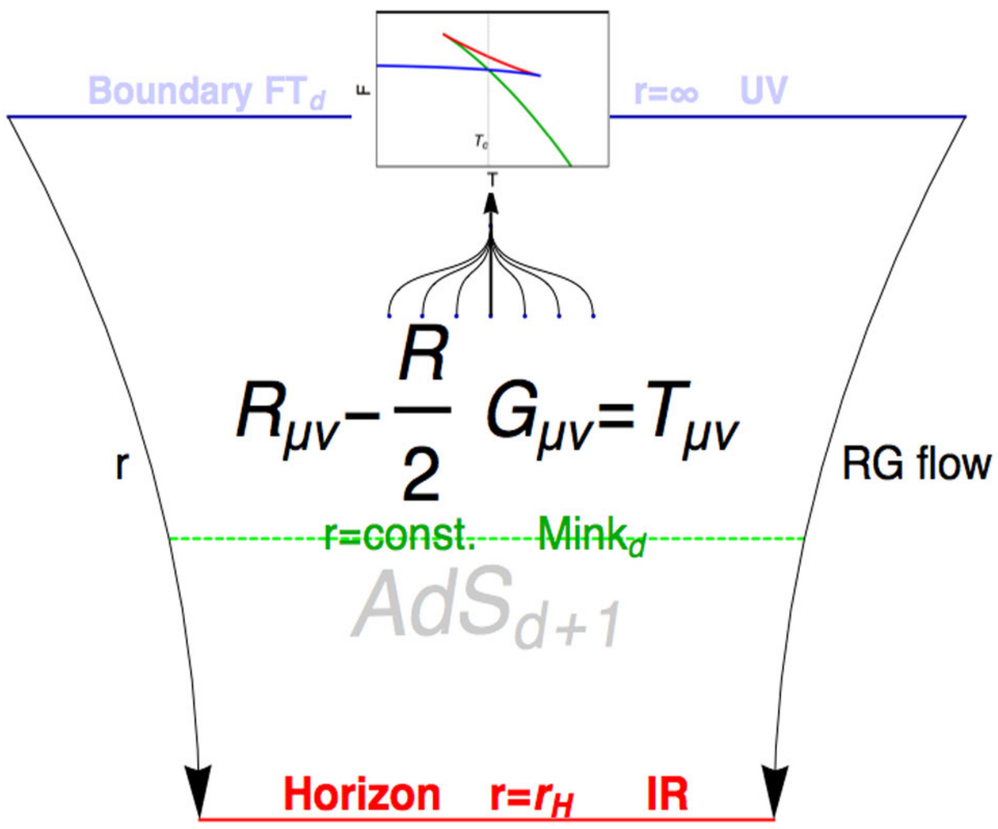
14 - 20 July 2019 (23 - 29 Tir 1398)

School of Physics, Institute for Research in Fundamental Sciences (IPM)

Lecturer:

Dr. Hesam Soltanpanahi Sarabi

School of Physics and Telecommunication Engineering,
South China Normal University, Guangzhou, China



In this week-long crash course, I will cover the basic and recent tools developed in the context of numerical gravity, with the main focus being placed on their applications to holography problems. I start with a short review of AdS/CFT and holographic renormalization. The first step of using machines is solving the Einstein equations of motion coupled to external fields with the help of numerical methods. Then we continue with studying the perturbations around black holes to find the corresponding quasi-normal modes. Finally, the time evolution of a given initial configuration, which mimics an interesting boundary physics will be investigated.

The course is aimed at graduate students and postdocs in the fields of HEP-TH and GR-QC. The participants are expected to have a basic knowledge of general relativity and field theory as well as a basic familiarity with the Mathematica software, which should preferably be installed on their personal laptops.

Each course day will consist of two 1.5 hrs sessions with the teaching material given in the first (morning) session, from 10:00am-11:30am, to be concluded with a problem set. The problem set will be discussed and solved in the second (afternoon) session, from 2:00pm-3:30pm.

Address: **School of Physics, Institute for Research in Fundamental Sciences (IPM), No. 70, Lavasani St., Tehran, Iran**

Place: **Classroom C, 2nd floor, Main Farmanieh Building**

URL: **http://physics.ipm.ac.ir/conferences/ccnh/**