

Compact Objects & Gravitational Waves

Invited Lecturers: Thomas Baumgarte (Bowdoin College, Brunswick)
Tobias Fischer (University of Wroclaw)
Ewald Müller (MPA, Garching)
Paulo Freire (MPIfR, Bonn)
Nikolaos Stergioulas (Aristotle University of Thessaloniki)

SOC: Friedrich Röpke, Andreas Bauswein (HITS Heidelberg),
Rainer Spurzem (ARI Heidelberg)

School program: Lectures, science talks

Monday, September 11th, 2017

08:30 - 13:30 Registration
09:30 - 10:00 Welcome, organisational remarks
10:00 - 11:30 A brief outline of GR (Thomas Baumgarte)
11:30 - 13:00 Structure of Neutron stars I (Nikolaos Stergioulas)
13:00 - 14:30 Lunch
14:30 - 16:00 Basic computational fluid dynamics I (Ewald Müller)
16:00 - 16:30 Coffee break
16:30 - 18:00 The neutron star equation of state (Gerd Röpke)

Tuesday, September 12th, 2017

09:00 - 10:30 Structure of Neutron stars II (Nikolaos Stergioulas)
10:30 - 11:00 Coffee break
11:00 - 12:30 The 3+1 decomposition (Thomas Baumgarte)
12:30 - 14:00 Lunch
14:00 - 15:30 Basic computational fluid dynamics II & numerical approaches to
MHD (Ewald Müller)
15:30 - 16:00 Coffee break
16:00 - 17:30 Neutron star mergers (Andreas Bauswein)

18:00 - 19:30 Social dinner at MPIA (bus transfer 17:30)

19:30 - 21:30 Discussion of school exercises; applications of relativistic hydrodynamics

Wednesday, September 13th, 2017

09:00 - 10:30 Relativistic hydrodynamics & simulations of relativistic hydrodynamic jets (Ewald Müller)

10:30 - 11:00 Coffee break

11:00 - 12:30 Solving the constraint and evolution equations (Thomas Baumgarte)

12:30 - 13:30 Lunch

14:00 - 18:00 Excursion: Castles of Neckarsteinach – Hiking , boat trip on the Neckar

Thursday, September 14th, 2017

09:00 - 10:30 Structure of Neutron stars III (Nikolaos Stergioulas)

10:30 - 11:00 Coffee break

11:00 - 12:30 Core-collapse supernovae & formation of compact objects I (Tobias Fischer)

12:30 - 14:00 Lunch

14:00 - 15:30 Neutron stars, Radio Pulsars et al.: an introduction (Paulo Freire)

15:30 - 16:00 Coffee break

16:00 - 17:30 X-ray binaries (Marat Gilfanov)

17:30 - 18:00 Discussion of tutorial results (Thomas Baumgarte)

19:00 - 22:00 Pub evening

Friday, September 15th, 2017

09:00 - 10:30 Core-collapse supernovae & formation of compact objects II (Tobias Fischer)

10:30 - 11:00 Coffee break

11:00 - 12:30 Pulsars, gravitational waves and tests of general relativity (Paulo Freire)

12:30 - 14:00 Lunch

14:00 - 15:30 Formation and evolution of binary pulsars and their masses (Paulo Freire)

15:30 - 16:00 Farewell, departure