

ADVANCED SEMINAR (OBERSEMINAR) ON RELATIVITY AND COSMOLOGY

Time: Tuesdays, 14:00–15:30

Location: Seminar room Theoretical Physics

22.11.2011 Gravitomagnetism

(*Christos Christou*)

Literature: B. Mashhoon, Gravitoelectromagnetism: A Brief Review, arXiv:gr-qc/0311030v2; C. Kiefer and C. Weber, On the interaction of mesoscopic quantum systems with gravity, *Annalen der Physik*, **14**, 253–278 (2005) or arXiv:gr-qc/0408010v2; C. Everitt *et al.*, *Physical Review Letters*, **106**, 221101 (2011), or arXiv:1105.3456v1 [gr-qc]; for an English translation of the original Thirring–Lense papers with commentary, see B. Mashhoon, F. W. Hehl, and D. S. Theiss, On the Gravitational Effects of Rotating Masses: The Thirring-Lense Papers, *General Relativity and Gravitation*, **16**, 711–750 (1984).

29.11.2011 Singularity theorems in general relativity

(*Sebastian Schuster*)

Literature: R. Wald, *General Relativity* (Chicago 1984), Chap. 9: Singularities; S. Hawking und R. Penrose, *The Nature of Space and Time* (Princeton University Press 1996), or the German translation: *Raum und Zeit* (Rowohlt Taschenbuch Verlag 2000)

13.12.2011 Superluminal velocities in general relativity?

(*Markus Strehlau*)

Literature: D. Lüst and M. Petropoulos, Comment on superluminality in general relativity, arXiv:1110.0813v1 [gr-qc] and references therein.

10.1.2012 Rotating black holes: Theory and observation

(*Christopher Max*)

Literature: J. Hartle, *Gravity* (Addison-Wesley), Chap. 15; M. Begelman and M. Rees, *Gravity's fatal attraction* (second edition, Cambridge University Press 2010); P. Townsend, Black Holes, arXiv:gr-qc/9707012v1.

17.1.2012 The topology of the Universe

(*Sebastian Schuster*)

Literature: M. Lachièze-Rey and J.-P. Luminet, Cosmic topology, *Physics Reports*, **254**, 135–214 (1995) or arXiv:gr-qc/9605010v2; J.-P. Luminet, The Shape and Topology of the Universe, arXiv:0802.2236v1 [astro-ph].