

Karlsruhe Institute of Technology
 Institute for Theory of Condensed Matter (TKM) and Institute of Nanotechnology (INT)

Lecture course “Field Theory of Condensed Matter” WS 16/17

Hydrodynamics

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 30.22 KI. HS A

Mo. 11:30 - 13:00 (weekly) and Thu. 09:45 - 11:15 (every two weeks),
 First lecture: Mo. 17.10.16

http://www.tkm.kit.edu/lehre/3161_3163.php

No.	date	lecturer	topic
01	Mo. Oct.17	IVG	Introduction, Boltzmann equation
02	Thu. Oct.20	IVG	from kinetic equations to hydrodynamics (HD)
03	Mo. Oct.24	IVG	Poiseuille and Stokes flow
04	Mo. Oct.31	IVG	HD transport in electron fluids
05	Thu. Nov 03	JS	HD of Fermi liquids, intro
06	Mo. Nov.07	JS	HD of Fermi liquids, viscosity
07	Mo. Nov.14	JS	HD near the superconductor-metal QCP
08	Thu. Nov.17	JS	HD near the superconductor-metal QCP
09	Mo. Nov.21	JS	HD in superfluids
10	Mo. Nov.28	JS	HD in superfluids
11	Thu. Dec.01	JS	HD in graphene
12	Mo. Dec.05	JS	HD in graphene
13	Mo. Dec.12	BNN	HD in graphene: Magnetotransport and drag
14	Thu. Dec.15	BNN	HD in Weyl systems, chiral anomaly
15	Mo. Dec.19	BNN	HD in Weyl systems, chiral anomaly
16	Mo. Jan.09	BNN	general relativity and HD
17	Thu. Jan.12	BNN	general relativity and HD
18	Mo. Jan.16	BNN	nonlinear HD, solitons, KdV, turbulence...
19	Mo. Jan.23	BNN	nonlinear HD, solitons, KdV, turbulence...
20	Thu. Jan.26	BNN	nonlinear HD, solitons, KdV, turbulence...
21	Mo. Jan.30	IVG	HD in 1D systems
22	Mo. Feb.06	IVG	elasticity and HD
23	Thu. Feb.09	IVG	elasticity and HD

Literature:

1. L.D. Landau and E.M. Lifshitz, *Course of Theoretical Physics: Fluid Mechanics* (Vol. 6); *Theory of Elasticity* (Vol. 7); *Physical Kinetics* (Vol. 10).
2. P.M. Chaikin and T.C. Lubensky, *Principles of Condensed Matter Physics*.
3. ... to be announced later ...