

Lecture „Physik und Technik von Ionenquellen“ Wintersemester 2013/2014

Prof. Dr. Oliver Kester, Dr. Lars Groening, Dr. Peter Forck

Time: Friday 2-4 pm lecture, 4-4.45 pm exercise

Room: 2.201a

Date	Topic	Lecturer	Exercise
18.10.	Introduction and overview	O. Kester	
25.10.	Ionisation – Electron impact ionisation + photo ionisation	O. Kester	
01.11.	Plasmaphysics and magnetic confinement	O. Kester	No. 1
08.11.	rf-driven ion sources and the Electron Cyclotron Resonance Ion Sources (ECRIS)	O. Kester	No. 2
15.11.	High current ion sources	O. Kester	No. 3
22.11.	Surface and laser ion sources	O. Kester	No. 4
29.12.	The Electron Beam Ion Source	O. Kester	No. 5
06.12.	Ion beam extraction of plasma sources and beam formation	O. Kester	No. 6
13.12.	Beam emittance and beam transport	P. Forck	No. 7
20.12.	Beam diagnostics	P. Forck	No. 8
17.01.	Linear beam optics – transport matrixes	L. Groening	No. 9
24.01.	Space charge	L. Groening	No. 10
31.01.	RFQ accelerators and concepts	L. Groening	Test
07.02.	Application of ion sources	O. Kester	
14.02.	GSI ions sources and accelerator facility	All	

Skript: <http://acc.physik.uni-frankfurt.de/>

unter dem Punkt „Vorlesungen“.

Literature

- B. Wolf, *Handbook of ion sources*, CRC Press 1995
- G. Brown, *The physics and technology of ion sources*, 2004, Wiley VCH Verlag GmbH, ISBN 3-527-40410-4
- J. Großer, *Einführung in die Teilchenoptik*, Teubner 1983 (vergriffen)
- S. Molokovski, A.D. Suschkov, *Intensive Elektronen- und Ionenstrahlen*, Vieweg
- M. Reiser, *Theory and design of charges particle beams*, John Wiley & Sons 1994
- Septier, *Focussing of charged particles*, part A-C, Academic Press 1980
- CERN Accelerator School, CERN 94-01 Vol.I&II
- H. Zohm, *Plasmaphysik*, Vorlesungsskript, LMU München, Wintersemester 2001/2002
- L. Spitzer, *Physics of fully ionized gases*, second edition, John Wiley & Sons 1967
- Review of Scientific Instruments Vol.67, No.3, AIP 1996
- Review of Scientific Instruments Vol. 71, No.2, AIP 2000
- Review of Scientific Instruments Vol. 73, No.2, AIP 2002
- Fred J. Currell, *The Physics of Multiply and Highly Charged Ions Volume 1: Sources, Applications and Fundamental Processes* , 2004, Klywer Academic Publication, ISBN 1-4020-1565-8