

1. Record Nr.	UNINA9910300390303321
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Titolo	Towards a Compact Thin-Disk-Based Femtosecond XUV Source // by Oleg Pronin
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-01511-7
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (139 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	530
Soggetti	Lasers Photonics Optics Electrodynamics Solid state physics Optics, Lasers, Photonics, Optical Devices Classical Electrodynamics Solid State Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Doctoral Thesis accepted by Ludwig-Maximilians-University Munich, Germany.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Basics of mode-locking -- High-power thin-disk resonator and gain medium -- SESAM mode-locked thin-disk oscillator -- Kerr-lens mode-locked thin-disk oscillator -- Towards ultrashort CE phase stable pulses -- XUV output coupler and XUV/IR grazing-incidence beam splitter -- Conclusion.
Sommario/riassunto	This thesis provides unique information on the Kerr-lens mode-locking (KLM) technique applied to a thin-disk laser. It describes in detail cavity geometry, the qualitative approach to KLM, and self-starting behavior in the regime of both negative and positive dispersion. Comprehensive comparative analysis of KLM and semiconductor saturable absorber techniques is also carried out. Recent successful experiments on carrier-envelope phase stabilization, spectral broadening and compression of output of this oscillator underline the importance of

this new, emerging technology.
