

Preface

These proceedings comprise invited and contributed papers presented at the 13th International Conference on X-Ray Lasers (ICXRL 2012) which was held 11–15 June 2012 in Paris, in the famous Quartier Latin, inside the historical Center of Cordeliers. This conference is part of a continuing series dedicated to recent developments and applications of x-ray lasers and other coherent x-ray sources with attention to supporting technologies and instrumentation.

New results in the generation of intense, coherent x-rays and progress towards practical devices and their applications are reported in these proceedings, including areas of research in plasma-based x-ray lasers, 4th generation accelerator-based sources and higher harmonic generation.

Recent achievements related to the increase of the repetition rate up to 100 Hz and shorter wavelength collisional plasma-based soft x-ray lasers down to about 7 nm are presented. Seeding the amplifying plasma with a femtosecond high-order harmonic of infrared laser was foreseen as the required breakthrough to break the picosecond frontier. Numerical simulations based on the Maxwell-Bloch model are presented in these proceedings, transposing the chirped pulse amplification technique to the x-ray domain in order to increase the time over which the femtosecond seed can be amplified.

These proceedings also include innovative applications of soft x-ray lasers based on techniques and diagnostics relevant to topical domains such as EUV lithography, inertial confinement fusion, or warm dense matter physics.

We would like to thank the International Advisory Board for helping to organize the scientific program and the Local Organizing Committee for operation of the meeting. Also we would like to thank the Conference Secretary and the supporting staff for running the conference smoothly and editing these conference proceedings.

Paris, France

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X-Ray Lasers 2012

Proceedings of the 13th International Conference on

X-Ray Lasers, 11–15 June 2012, Paris, France

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2014, XXX, 290 p. 166 illus., 117 illus. in color.,

Hardcover

ISBN: 978-3-319-00695-6