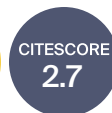




**atoms**



*Special Issue Reprint*

## **Interaction of Ionizing Photons with Atomic and Molecular Ions**

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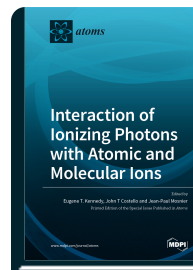
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ISBN 978-3-0365-2430-6 (Hardback)

ISBN 978-3-0365-2431-3 (PDF)



The interaction of ionising radiation with atomic and/or molecular ions is a fundamental process in nature, with implications for the understanding of many laboratory and astrophysical plasmas. At short wavelengths, the photon-ion interactions lead to inner-shell and multiple electron excitations, leading to demands on appropriate laboratory developments of sources and detectors and requiring advanced theoretical treatments which take into account many-body electron-correlation effects.

This book includes a range of papers based on different short wavelength photon sources including recent facility and instrumental developments. Topics include experimental photoabsorption studies with laser-produced plasmas and photoionization of atomic and molecular ions with synchrotron and FEL sources, including modifications of a cylindrical mirror analyzer for high efficiency photoelectron spectroscopy on ion beams. Theoretical investigations include the effects of FEL fluctuations on autoionization line shapes, multiple sequential ionization by intense fs XUV pulses, photoelectron angular distributions for non-resonant two-photon ionization, inner-shell photodetachment of Na- and spin-polarized fluxes from fullerene anions.



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