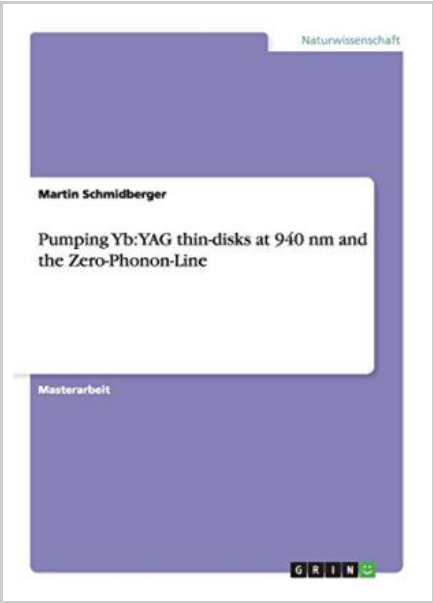

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Pumping Yb:YAG thin-disks at 940 nm and the Zero-Phonon-Line

By Martin Schmidberger

GRIN Verlag Gmbh Feb 2015, 2015. Taschenbuch. Book Condition: Neu. 221x169x12 mm. Neuware - Masterarbeit aus dem Jahr 2013 im Fachbereich Physik - Optik, Note: 1.3, Ludwig-Maximilians-Universität München, Sprache: Deutsch, Anmerkungen: Pumpen von Yb:YAG thin-disks bei 940nm Wellenlänge und auf der Zero-Phonon-Line, Abstract: With the prospect of high-intensity isolated attosecond pulses XUV pump-XUV probe spectroscopy as well as novel methods for controlling atomic-scale currents seem feasible paving the way for new physical, chemical, biological, and medical applications such as attosecond X-ray diffraction, non-invasive imaging and cancer therapy. To reach these ambitious goals, optical parametric chirped pulse amplifcation (OPCPA) in combination with high harmonic generation (HHG) seems like a promising route. But this approach puts stringent demands on the pump laser driving it. To overcome these challenges Yb:YAG as active laser medium in a thin-disk geometry is often used offering a lot of favourable properties for high power applications with excellent beam quality. Yb:Yag can be pumped at either 940 nm or, more recently, since the advent of Volume-Bragg-Grating stabilized diodes, at its Zero-Phonon-Line with a wavelength of 969 nm. These two wavelengths excite different transitions in the 5 F 1/2 electronic shell each exhibiting its own assets and drawbacks. This...

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