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Few-Cycle Microscopy of Stimulated Raman Side Scattering in a Laser Wakefield Accelerator

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We report on optical probing results using few-cycle microscopy obtained during a laser wakefield acceleration experiment carried out with the JETI-200 laser system at the Helmholtz-Institute Jena. When traveling through the plasma and exciting a plasma wave, the pump pulse can get scattered at plasma structures depending on the pump pulse's evolution inside the plasma, its chirp and the plasma electron density. This (stimulated) Raman Side Scattering (SRSS) was investigated using Few-Cycle Microscopy on a micrometer scale. Experimental results and numerical simulations will be presented.

Primary authors: Mrs ZEPTEP, Carola (Institute of Optics and Quantum Electronics); Dr SÄVERT, Alexander (Helmholtz Institute Jena); Mr SEIDEL, Andreas (Helmholtz Institute Jena); Mr SCHWAB, Matthew (Institute of Optics and Quantum-Electronics); Mr HOLLATZ, Dominik (Helmholtz Institute Jena); Prof. ZEPF, Matthew (Helmholtz Institute Jena); KALUZA, Malte (Institute of Optics and Quantum-Electronics, Friedrich Schiller University Jena)

Presenter: KALUZA, Malte (Institute of Optics and Quantum-Electronics, Friedrich Schiller University Jena)

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