

Abstract Submitted
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Absolute Laser Energy Absorption Measurement on Nanowire Targets¹ JAEBUM PARK, Colorado State University, RICCARDO TOMMASINI, RONNIE SHEPHERD, RICH LONDON, Lawrence Livermore National Laboratory, CLAYTON BARGSTEN, MARIA CAPELUTO, REED HOLLINGER, VYACHESLAV SHLYAPTSEV, JORGE ROCCA, Colorado State University — Laser irradiated nanowire structures can create extreme plasma conditions [1] and substantially increase the laser energy to x-ray conversion efficiency [2]. While the increased laser energy absorption (LEA) by the structured targets [1] is a main contributing factor, there have been no experimental LEA measurements in the relativistic intensity regime ($>10^{18}$ W/cm²). The LEA by nanowire targets is measured using the frequency doubled COMET laser at the Jupiter Laser Facility. The results show that the laser energy absorption of 0.7 ps frequency doubled (527 nm) pulses focused to an intensity of 10^{19} W/cm² on Au nanowire targets varies with nanowire parameters and reaches up to 71% of the incident energy, greatly exceeding that from foil targets. The absorption is expected to further increase for femtosecond pulses. [1] M. A. Purvis et al., *Nature Photonics* **7**, 796 (2013) [2] R. Hollinger et al., *Optica* **4**, 1344 (2017)

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