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**Efficient Non-Resonant Absorption in Thin Cylindrical Targets: Experimental Evidence** ANDREY AKHMETELI, LTASolid Inc., Houston, Texas, USA, NIKOLAY KOKODIY, BORIS SAFRONOV, VALERIY BALKASHIN, IVAN PRIZ, V. N. Karazin Kharkiv National University, Kharkiv, Ukraine, ALEXANDER TARASEVITCH, University of Duisburg-Essen, Institute of Experimental Physics, Duisburg, Germany — A theoretical possibility of non-resonant, fast, and efficient (up to 40 percent) heating of very thin conducting cylindrical targets by broad electromagnetic beams was predicted in [Akhmeteli, arXiv:physics/0405091 and 0611169] based on rigorous solution of the diffraction problem. The diameter of the cylinder can be orders of magnitude smaller than the wavelength (for the transverse geometry) or the beam waist (for the longitudinal geometry) of the electromagnetic radiation. This can be used for numerous applications, such as pumping of active media of short-wavelength lasers, e.g., through efficient heating of nanotubes with laser radiation. Experimental confirmation of the above results is presented [Akhmeteli, Kokodiy, Safronov, Balkashin, Priz, Tarasevitch, arXiv:1109.1626 and 1208.0066]. Significant (up to 6%) absorption of microwave power focused on a thin fiber (the diameter is three orders of magnitude less than the wavelength) by an ellipsoidal reflector is demonstrated experimentally. For the longitudinal geometry, experiments provide a confirmation of significant absorption (up to 35%) of the power of a wide CO2 laser beam propagating along a thin wire (the diameter of the wire can be orders of magnitude less than the beam waist width).

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