

GaAs wurtzite nanowires for hybrid piezoelectric solar cells

© P.A. Alekseev¹, V.A. Sharov¹, P. Geydt², M.S. Dunaevskiy¹, I.P. Soshnikov^{1,3,4},
R.R. Reznik^{3,4,5}, V.V. Lysak^{1,3}, E. Lähderanta⁵, G.E. Cirlin^{3,4,5}

¹ Ioffe Institute,

194021 St. Petersburg, Russia

² Lappeenranta University of Technology,

Lappeenranta, Finland

³ St. Petersburg Academic University, Russian Academy of Sciences,

194021 St. Petersburg, Russia

⁴ Institute of Analytical Instrumentation, Russian Academy of Sciences,

198095 St. Petersburg, Russia

⁵ ITMO University,

197101 St. Petersburg, Russia

E-mail: npoxep@gmail.com

The properties of the hybrid energy sources „piezoelectric nanogenerator-solar cell“ based on GaAs nanowires with the wurtzite crystal structure were investigated. Measurements were performed by the bending of the nanowire by the probe of the atomic force microscope with simultaneous recording of short circuit current in dark and illuminated conditions. We show that a piezoelectric current pulse of ~ 10 pA arises in the „nanowire-probe“ circuit during the deformation of nanowire by the AFM probe. Under laser illumination, the value of the pulse increases by two orders of magnitude as a result of the piezophototronic effect. Deformation of the nanowire boosts the photocurrent by 40% up to 0.5 nA.

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