

Micro-Raman study of columnar GaAs nanostructures

**Prunici Pavel, Irmer Gert, Monecke Jochen,
Sirbu Lilian, Tiginyanu Ion**

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Abstract

Micro-Raman scattering spectra of bulk and porous GaAs and of individual nanocolumns were studied. The GaAs nanocolumns have radii of 50–100 nm and lengths between 5 and 25 μm . The experimental data are compared with the results of calculations predicting coupled LO-phonon–plasmon and coupled Fröhlich-plasmon modes using a dielectric function derived on the basis of an appropriate two-dimensional effective medium theory.