

## **Observation of surface phonon mode in porous GaP**

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### **Abstract**

Simple preparation technique of nanoporous semiconductors by anodization has opened new ways to form and investigate quantum and surface effects in nanosized objects. It has also allowed technologists to extend the range of possible practical applications of well-known semiconducting materials. The bright visible photoluminescence (PL), in particular, of porous silicon has made this material very promising in the technology of light-emitting devices. The visible PL of nanosized silicon particles is supposed to be connected with a quantum size effect which transforms the indirect gap material into a direct gap one with a simultaneous strong increase of EG. This type of band gap engineering approach may be useful when applied to indirect gap semiconductors, other than Si. Porous GaP is such an example; it was fabricated recently and has exhibited intense green PL and a broadened LO phonon Raman peak. In this communication we present detailed experimental results on Raman scattering (RS) spectra of porous GaP layers obtained by electrochemical anodization of (100) and (111) substrates in hydrofluoric acid solution at different current densities.