AIP | Applied Physics Letters

Resonant tunneling through quantum wells at frequencies up to 2.5 THz

T. C. L. G. Sollner[1], **W. D. Goodhue**[1], **P. E. Tannenwald**[1], **C. D. Parker**[1] and **D. D. Peck**[1]

Appl. Phys. Lett. 43, 588 (1983); **http://dx.doi.org/10.1063/1.94434**

Abstract

Resonant tunneling through a single quantum well of GaAs has been observed. The current singularity and negative resistance region are dramatically improved over previous results, and detecting and mixing have been carried out at frequencies as high as 2.5 THz. Resonant tunneling features are visible in the conductance-voltage curve at room temperature and become quite pronounced in the *I-V* curves at low temperature. The high-frequency results, measured with far IR lasers, prove that the charge transport is faster than about 10^{-13} s. It may now be possible to construct practical nonlinear devices using quantum wells at millimeter and submillimeter wavelengths.

© 1983 American Institute of Physics

DOI: **http://dx.doi.org/10.1063/1.94434**
Received 09 May 1983 Accepted 01 July 1983

Key Topics

Quantum wells
Resonant tunneling
Negative resistance
Quantum well
devices

Most read this month

Room-temperature anomalous Hall effect in amorphous Si-based magnetic semiconductor

Jia-Hsien Yao, **Hsiu-Hau Lin**, **Yun-Liang Soo**, **Tai-Sing Wu**, **Jai-Lin Tsai**, **Ming-Der Lan** and **Tsung-Shune Chin**

High-Q silicon photonic crystal cavity for enhanced optical nonlinearities

Ulagalandha Perumal Dharanipathy, **Momchil Minkov**, **Mario Tonin**, **Vincenzo Savona** and **Romuald Houdré**

Unusual defect physics in $CH_3NH_3PbI_3$ perovskite solar cell absorber

Wan-Jian Yin, **Tingting Shi** and **Yanfa Yan**

Most cited this month

Two-layer organic photovoltaic cell

C. W. Tang

 Print to PDF without this message by purchasing novaPDF (http://www.novapdf.com/)

Reversible conductivity changes in discharge-produced amorphous Si

D. L. Staebler and **C. R. Wronski**

Submicrosecond bistable electro-optic switching in liquid crystals

Noel A. Clark and **Sven T. Lagerwall**

 Print to PDF without this message by purchasing novaPDF (http://www.novapdf.com/)