

Lectures, presentations etc. (Only for subscribers)

SPQEO Journal goes on the rubric “Lectures, Presentations etc.” to disseminate information about fundamentals of sciences close to SPQEO directions and areas. The lectures could be both interesting and useful for scientists, PhD students and other persons with an inquiring nature, who is working or studying not only in the area of semiconductor physics, but in solid state physics, chemistry, biology, and informatics, too.

This issue of SPQEO Journal continues the cycle of lectures by Prof. Vyacheslav Kochelap with his lectures 7 and 8. This cycle is devoted to one of the actual directions in modern physics, namely: nanophysics and nanoelectronics.

Lecture 7 of the cycle “Nanoelectronics and Optoelectronics: Science, Nanotechnology, Engineering and Application” by Prof. Vyacheslav O. Kochelap

Here you can find the following material:

7. Electron transport in nanostructures
 - 7.1. Classical dissipative transport
 - 7.2. Classical high-frequency transport
 - 7.3. Dissipative transport in a short device
 - 7.4. Hot electrons
 - 7.5. Ballistic effects
 - 7.6. Electron quantum transport in nanostructures
 - 7.7. Single electron transfer

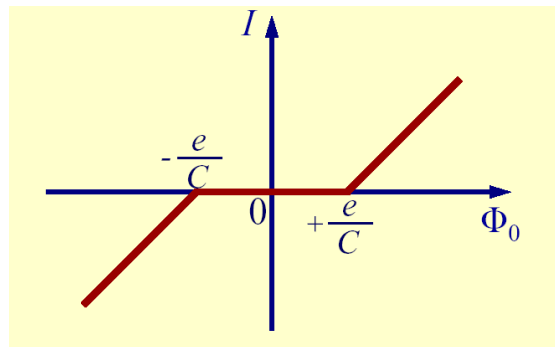


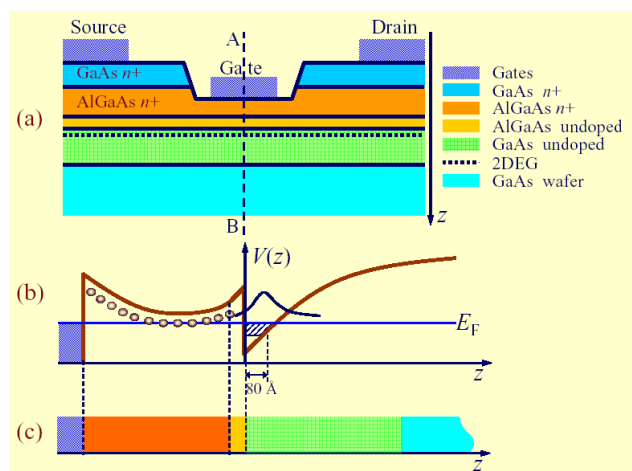
Fig. 1. Current-voltage characteristic under Coulomb blockade.

Lecture 8 of the cycle “Nanoelectronics and Optoelectronics: Science, Nanotechnology, Engineering and Application” by Prof. Vyacheslav O. Kochelap

Here you can find the following points:

8. Nanostructure devices.
 - 8.1. Introduction
 - 8.2. Resonant-tunneling diodes
 - 8.3. Field-effect transistors
 - 8.4. Single-electron transport devices
 - 8.5. Potential ballistic effects in field-effect transistors
 - 8.6. Light-emitting diodes and lasers
 - 8.7. Devices of nanoelectromechanical system
 - 8.8. Quantum dot cellular automata
 - 8.9. Closing remarks

Shown in Fig. 2 is the field-effect transistor.



We are looking for feedback, new proposals for lectures, presentations, etc.