

# Introduction to Physics of Nanoparticles and Nano structures

## Part II: Physics of Nanostructures

## Questions on Module 8

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1. Explain Coulomb blockade using the capacitor model for quantum dot. Show that no tunnel current can flow through the dot below a threshold voltage  $|V| = e/(2C)$ .
2. Consider two quantum dots forming the so called single electron transistors. Explain its characteristics using the electrostatics energy consideration.

### References:

1. Transport in Nanostructures, David K. Ferry and Stephen M. Goodnick, (Cambridge University Press, Cambridge, New York, Melbourne, Madrid, Cape Town, Singapore, Sao Paulo, 1997, paperback edition 1999, reprinted 2001)

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