

Journal of Materials Focus
A Special Issue on
“Dimension Dependent Electronic Materials and Their Electron Energy Spectra”

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It is well-known that the Electron Energy Spectra (ESS) in Electronic Materials and their nano-structures occupy a singular position in the whole arena of Materials Science and related disciplines in general and whose importance has already been established since the inception of the theory of band structure of Solid State Physics. The concept of ESS is of fundamental importance for not only the characterization of Electronic Materials but also the study of the Electron transport in them and their quantized counter parts through the proper formulation of the Boltzmann Transport equation which, in turn, needs the corresponding ESS is still one of the open research problems. It is important to note that six important transport quantities namely, the effective carrier mass (ECM), density-of-states (DOS) function, the sub-band energy and the measurement of band-gap in the presence of strong light waves, intense electric field and heavy doping are in disguise in the very important concept of ESS. Besides, the acoustic mobility limited momentum relaxation time is inversely proportional to the respective DOS function of a particular electronic material and integral over the DOS function leads to carrier statistics under the condition of extreme carrier degeneracy which, in turn, is connected to the twenty five important transport topics of quantum effect devices made of electronic materials namely the Landau Dia and Pauli's Para Magnetic Susceptibilities, the Einstein's Photoemission, the Einstein Relation, the Generalized Raman gain, the Normalized Hall coefficient, the Fowler-Nordheim Field Emission, the Gate Capacitance, the Thermoelectric Power, the Plasma Frequency, the Magneto-Thermal effect in Quantized Structures, the Activity coefficient, the Reflection coefficient, the Heat Capacity, the Faraday rotation, the Optical Effective Mass, the Carrier contribution to the elastic constants, the Diffusion coefficient of the minority carriers, the Nonlinear optical response, the Third order nonlinear optical susceptibility, the Righi-Leduc coefficient, the Electric Susceptibility, the Electric Susceptibility Mass, the Electron Diffusion Thermo-power and the Hydrostatic Piezo-resistance Coefficient respectively.

The Electronic Materials occupy a central position in the entire arena of Materials Science in general, by their own right and find extensive applications in Nano Science and Nano Technology. This special issue focuses on **“Dimension Dependent Electronic Materials and Their Electron Energy Spectra”**.

Emphasis will be on both theoretical and experimental research works leading to new concepts. We invite the submission of original full-length research articles and short communications for rapid publication on the aforesaid fields and related disciplines.

Manuscript Submission

Manuscripts must be prepared according to Journal's guidelines, available at [http:// www.aspbs.com/mat](http://www.aspbs.com/mat) Submit your manuscripts in MS word or PDF format online to the first email address. In the cover letter, please mention that the manuscript is submitted for the special issue. All papers submitted to this issue will be subject to a strict peer review process to ensure high quality articles. Please also mention in the cover letter that the submitted paper has not been published previously and is not currently submitted for review to any other journal and will not be submitted elsewhere before a decision is made by this journal.

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