

Terça-Feira, 16 de Abril às 14:30h

Anfiteatro de Química

Group III–VI layered semiconductors and related structures.

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Professor Leontie is member of permanent staff of the Faculty of Physics at Alexandru Ioan Cuza University of Iasi, Romania, working in research and education at this institution for more than 25 years. His research is focused on physics of low-dimensional semiconductor materials and structures, covering transport, optical properties, deposition and characterization of metal oxide, group III–VI and organic semiconductors. He also has expertise in Atmospheric and Environmental Physics.

Professor Leontie has published more than 75 ISI papers, including 4 review papers and has more than 120 contributions to international conferences.

Professor Leontie is also involved in academic management and is currently the Erasmus + coordinator of the Faculty of Physics at Alexandru Ioan Cuza University of Iasi.

Resumo: This talk is focused on the investigation of layered III-VI materials and related lamellar composites and structures with a huge untapped application potential. Relevant results will be introduced in terms of optical, photoluminescence and photosensitivity properties, in relation with the transport and generation-recombination processes of minority charge carriers.

Investigations of the optical properties of undoped and Cu-doped GaSe reveal peculiar particularities of excitonic absorption in their optical spectra, along with strong optical anisotropy (ratio of the absorption coefficients of GaSe is $\alpha_{\parallel}/\alpha_{\perp} \approx 15$). Additional results will be discussed with respect to transport and generation-recombination processes in GaSe(Cu) lamellas, where trap levels are related with the Cu impurity centers. The specific structural features of layered III-VI semiconductors enable the intercalation of diverse atomic/molecular ions between chalcogen planes, thus leading to formation of novel lamellar nanocomposites/nanostructures, again showing promise for applications. Optical, PL and photosensitivity properties of some lamellar nanocomposites will be discussed in the last part of the talk.

The talk is concluded with an overview of the past and current achievements, and future insights in the field of layered III-VI semiconductors and III-VI/metal oxide structures.