



ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

PHYSICS COLLOQUIUMThursday, 30 April 2009
17:00-18:003rd Floor Seminar Room***"Extending the range of III-Nitride semiconductor heterostructure-nanostructure materials and their unique devices"***Prof. A. Georgakilas
Physics Dept, UoC

Abstract

III-Nitride semiconductors is the new family of III-V semiconductors that is intensively investigated in the last years. Although unprecedented device performances have been realized in very short development times, such as the blue laser diode and ultra-bright blue and green LEDs, much more are expected to come in micro-, nano-, and opto-electronic devices and sensors. The available III-nitride devices are made from heterostructure materials based on GaN and low In- or Al-content $\text{In}_x\text{Ga}_{1-x}\text{N}$ or $\text{Al}_x\text{Ga}_{1-x}\text{N}$ alloys, respectively. We will discuss the last years' developments in Crete. A good understanding of the nitrogen plasma source molecular beam epitaxy of III-nitrides has allowed the realization of a broad range of new III-nitride heterostructure and nanostructure materials, based on InN, $\text{In}_x\text{Al}_{1-x}\text{N}$, $\text{In}_x\text{Ga}_{1-x}\text{N}$ and AlN, with unique properties. First results on device quality GaN-on-diamond heterostructures will be reported.