Centre de Nanosciences et de Nanotechnologies

Soutenance de thèse

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14 heures

salle INSP 22- 23 317 – C2N site Marcoussis

Valerio PASQUALI

"Fabrication and characterisation of strain-free GaAs/AlAs quantum dot devices"

Rapporteur	Chantal FONTAINE (LAAS, Toulouse, France)
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Abstract:
In this talk, I present the fabrication by molecular beam epitaxy of strain-free GaAs/AlGaAs quantum dots (QDs) by infilling in-situ etched nanoholes. After describing the process, I discuss how this QDs have been embedded in a two-dimensional electron gas (2DEG) heterostructure.The effect of the QDs on the 2DEG mobility will be discussed by comparing the magneto-transport measurements of the QD-2DEG sample with reference samples without QDs grown with similar conditions. Finally, I show the fabrication and characterisation of a lateral p-n junction with embedded QDs by locally inverting the n-type dopant (Silicon) with a p-type dopant (Zn). In particular, I will show the main result of this project, which is the elecotroluminescence of a single dot in proximity of the lateral p-n junction.