

# Séminaire

**Mercredi 16 mai 2018**  
**14h00**

**C2N, Site Orsay Salle 44**

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## “NITRIDE CHEMICAL PASSIVATION OF IIIIV SEMICONDUCTOR SURFACES: CHEMISTRY, POSSIBLE APPLICATIONS “

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A wet chemical nitridation procedure in hydrazine–sulfide solutions has been developed for surface passivation of  $A_3B_5$  semiconductors. For GaAs and GaSb this procedure allows to create a monolayer of GaN coherently bonded with surface atoms of these crystals. Due to high stability of Ga-N bond, the formed nitride minolayer protects the semiconductor surfaces against oxidation in atmospheric ambient. In also provides an effective electronic passivation. Chemical processes occurring in GaAs surface in the hydrazine-sulfide solution are explained. Some experimental results evidencing to chemical and electronic passivation of the nitridized GaAs surfaces are presented. Finally, a number of possible applications of the wet nitridation including passivation of GaAs nanowires are demonstrated.

Surface chemical nitridation of GaAs nanowires (NW) reduces the surface state density by a factor of 6 that gives rise to essential increase of the NW conductivity and microphotoluminescence intensity

