



GEMaC

Groupe d'Étude de la Matière Condensée

CRYSTAL FACET ENGINEERING: CHRISTMAS TREE OR TAIPEI TOWER-LIKE NANOSTRUCTURES

The work of GEMaC researchers and engineers is on the cover of Physica Status Solidi RRL of June.

In situ gallium doping during the metal-organic chemical vapor deposition (MOCVD) growth of Au-catalyzed zinc oxide nanowires induces the formation of new and unexpected Oxygen-polar surfaces, demonstrating that crystal facet engineering can be achieved through a modification of surface energies. Nanostructures having opposite polarities are generated: Christmas trees grown along $+c(0001)$ axis exhibit overhangs, while Taipei towers grown along $-c(000-1)$ axis show terraces. The achievement of such ZnO nanostructures with developed O-polar surfaces have a strong potential interest for the realization of sensor devices or photo-catalysis applications that would require specific surface reactivity.

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