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Surfactant Antimony enhanced Indium incorporation on InGaN –C plane¹ YIOU ZHANG, JUNYI ZHU, Chinese Univ of Hong Kong — InGaN is an ideal alloy system for optoelectronic devices due its tunable band gap. Yet high-quality InGaN with high In concentration is still a challenging issue that limits its use in green-light LEDs and other devices. In this presentation, we report the surfactant effect of Sb on the In incorporation on InGaN (000-1) surface via first-principles approaches. We constructed surface phase diagram to determine surface structures under different growth conditions. By analyzing surface stress under different structures, we found that Sb adatom can induce tensile sites in the cation layer, enhancing the In incorporation. These findings may provide fundamental understandings and guidelines for the growth of InGaN with high In concentration.

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