

III-V nanowires for silicon-integrated nanophotonics: opportunities and challenges

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Abstract:

I will review the state-of-the-art research on synthesis of III-V nanowires (NWs) on silicon substrates and photonic nano-heterostructures based on such NWs. Some recent advancements will be discussed, including coherent growth in regular arrays on silicon substrates and some growth features of the vapor-liquid-solid growth which enable controllable tuning of the NW morphology, composition, crystal phase and statistical properties of the size distributions within the ensembles of NWs. Opportunities and challenges for optoelectronic applications of III-V NW heterostructures monolithically integrated with silicon electronic platform will be discussed.

Biography of presenting author:

V. G. Dubrovskii has authored and co-authored some 670 technical papers, including more than 300 journal papers indexed by WoS, 2 monographs and has a Hirsch-index of 45. His research interests are in synthesis and modeling of semiconductor nanowires and design of optoelectronic nanomaterials. He is a Professor and Head of the Laboratory of Physics of Nanostructures at Faculty of Physics, St. Petersburg State University. He has received a number of awards and honors including Chevalier of Ordre des Palmes académiques, France (2017), Doctor Honoris Causa of Université Clermont Auvergne, France, and Regular high-level visiting scientist in IGAT Base at Beijing University of Posts and Telecommunications, China (2007-2018).

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