



Silicon Photonics: Synthesis and Applications

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Message from the Guest Editors

Dear Colleagues,

Silicon photonics is expanding its frontiers towards new applications beyond Datacom, such as sensing, microwave photonics, neuromorphic computing, motion tracking, navigation and quantum information. Aiming to meet the requirements of these new applications, Si photonics is now exploring different novel strategies that include, among others, the use of different bulk and 2D materials, development of complex design strategies assisted by artificial intelligence, synthesis of nanostructured metamaterials/metasurfaces, multilayer waveguides for 3D photonic circuits, co-integration of electronics and photonics, and high-density optical packaging of silicon photonic chips, or the exploitation of alternative physical phenomena, e.g., Kerr nonlinearities or Brillouin optomechanical interactions. This Special Issue focuses on the latest research and development of silicon photonics, targeting novel design, fabrication and integration techniques, and emerging applications.





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Message from the Editor-in-Chief

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