

Silicon nanophotonics: a new twist to silicon photonics

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Silicon photonics is a technology which enables to take pace with the development of internet and the large bandwidth requests by data center and high performance computers, still keeping low the power consumption. At the same time, many other applications are emerging for silicon photonics in such a different fields such as medicine and security. In this talk, after a brief introduction of silicon photonics I will review the opportunities that are opened by applying the nanotechnology paradigm to silicon photonics. I will discuss three examples:

1. Chaos in selfinduced oscillations in sequence of microrings,
2. Purcell and downshifting effects to enhance silicon photovoltaics,
3. Whispering gallery mode resonators for biosensing applications.