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Generating intense optical fields with integrated plasmonic components on silicon

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时间：9月14日（星期四）15:00—16:30
地点：北京大学物理大楼西楼202报告厅

•**摘要：** Plasmonics is a potential route to optical devices that generate intense localized optical fields with unique capabilities in nonlinear optics. Many predict that sub-wavelength optical systems will be essential in the development of future optical integrated circuits, but realising this potential will be contingent on the ability to exploit plasmonic effects with semiconductor materials. Furthermore, the capability to focus light beyond the wavelength limit presents opportunities to explore intense optical field physics and sensing applications. To these ends my team investigates various implementations of gap plasmon focussing devices built on semiconductor platforms that look promising for such applications. Recently, we have had success with nanofocusing elements that boost over 100-fold, the electric fields of guided waves within gaps as narrow as 25 nm. Remarkably, the intense fields at the nano-scale focus of such devices can drive efficient four wave mixing over micron length scales. Such short interaction length nonlinear devices introduce to the possibility of compact devices with relaxed phase matching restrictions.

•报告人简介：Rupert F. Oulton is an associated professor in Physics at Imperial College London. His current research interests include the linear and nonlinear optics of metallic nanostructures, metal-based “plasmonic” lasers and quantum optics.

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