



## Silicon Hybrid Plasmonic Waveguides

By Marcelo Wu

LAP Lambert Acad. Publ. Okt 2011, 2011. Taschenbuch. Condition: Neu. Neuware - The field of plasmonics has offered the promise to combine electronics and photonics at the nanometer scale for ultrafast information processing speeds and compact integration of devices. Various plasmonic waveguide schemes were proposed with the potential to achieve switching functionalities and densely integrated circuits using optical signals instead of electrons. Among these, the hybrid plasmonic waveguide stands out thanks to two sought-out properties: long propagation lengths and strong modal confinement. In this work, hybrid plasmonic waveguides and passive devices were theoretically investigated and experimentally demonstrated on an integrated silicon platform. A thin silicon dioxide gap between a gold conductive layer and a silicon core provides subwavelength confinement of light inside the gap. A long propagation length of 40 m was experimentally measured. A system of taper coupler connects the plasmonic waveguide to conventional photonic waveguides at a high efficiency of 80%. Passive devices were also fabricated and characterized, including S-bends and Y-splitters. 100 pp. Englisch.



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