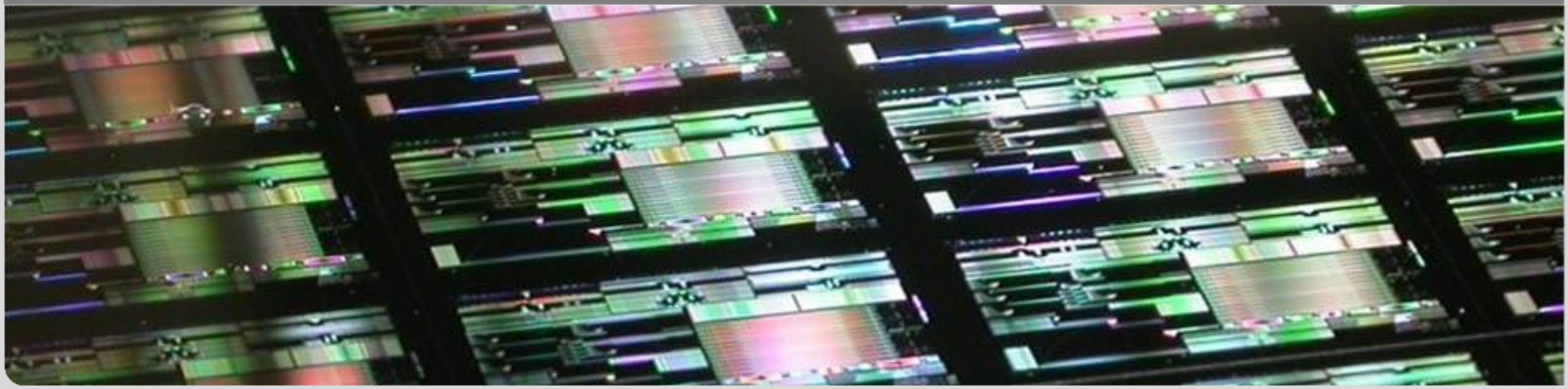
Karlsruhe Institute of Technology

IPQ

NAVOLCHI TeleConf. 08.04.2013

Institute of Photonics and Quantum Electronics (IPQ), Karlsruhe, Germany
Institute of Microstructural Technology, Karlsruhe, Germany



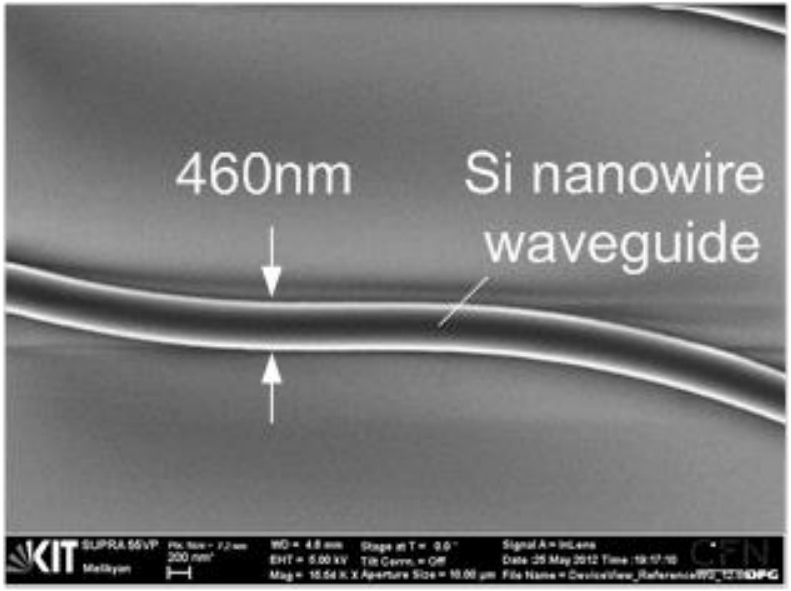
Milestones

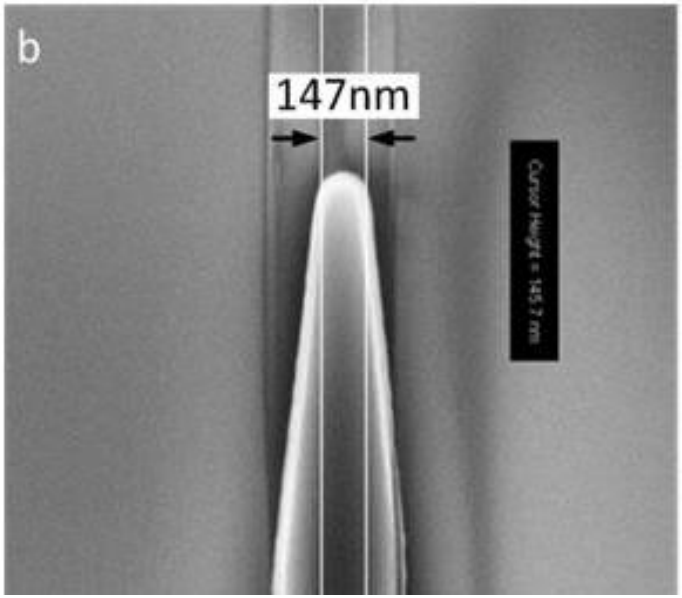
Milestones

MS37	Plasmonic active device characterization results	6	KIT	12	10/2012
MS11	Fabrication of plasmonic modulator on a SOI platform	3	KIT	15	01/2013
MS18	Demonstration of conductive QD layers with photoconductive properties	4	UVEG	15	01/2013
MS19	Demonstration of metal-(lithographic) polymer and QD metal-(lithographic) polymer nanocompo-sites	4	UVEG	15	01/2013
MS29	Data codecs for power consumption reduction	5	ST	15	01/2013
MS30	Decision on plasmonic waveguide couplers with less than 3 dB coupling loss	5	KIT	15	01/2013
MS46	Identification of possible contributions to the industrial partners for commercialization	7	ST	15	01/2013

Milestones

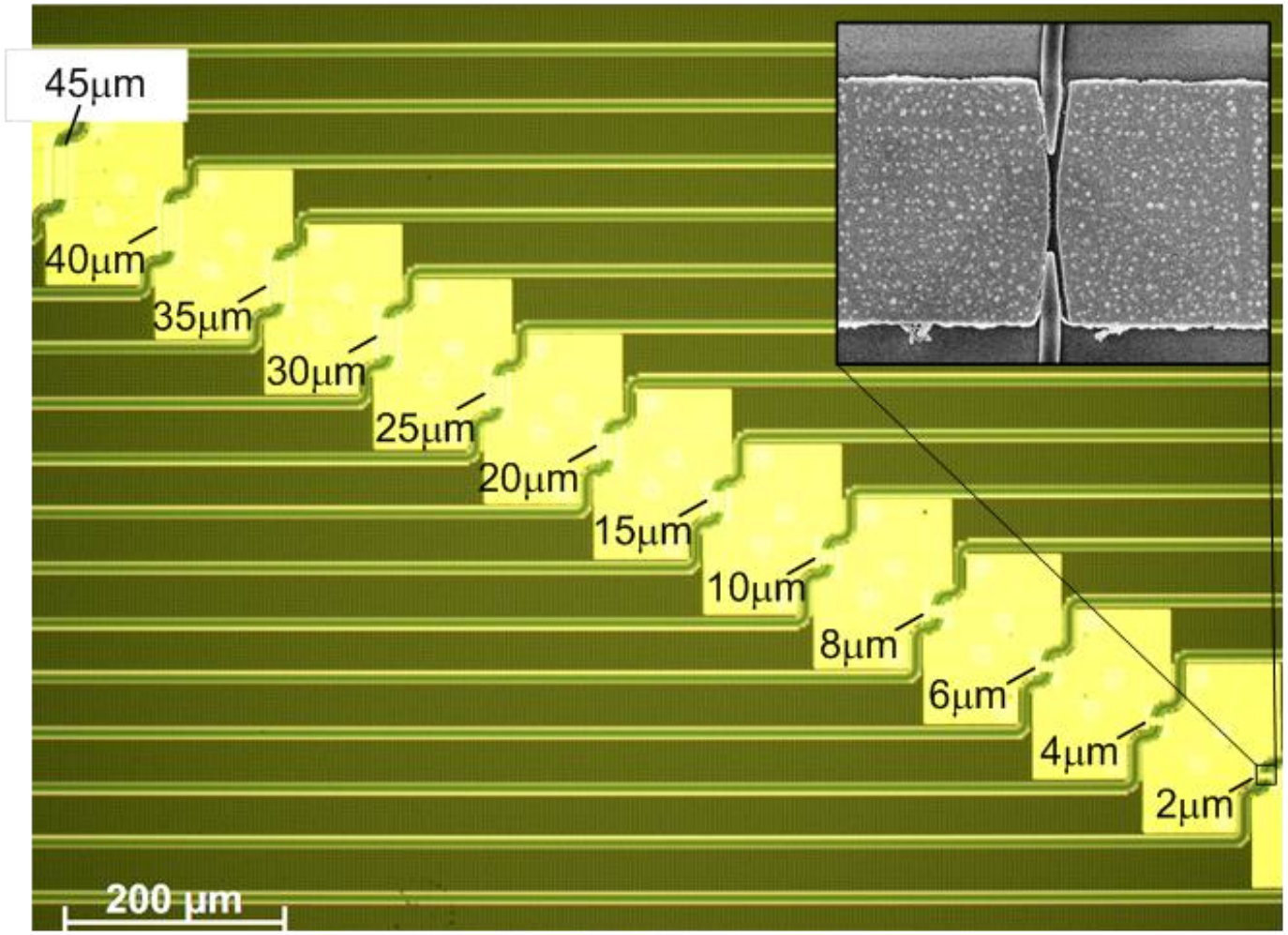
Milestone 11: Fabrication of plasmonic modulator on a SOI platform (with IMEC)





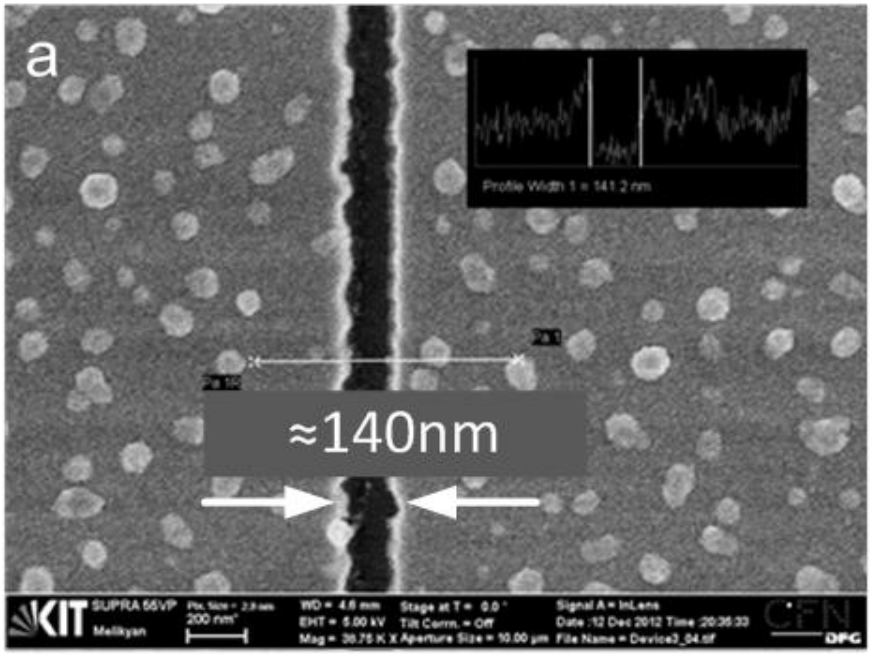
Milestones

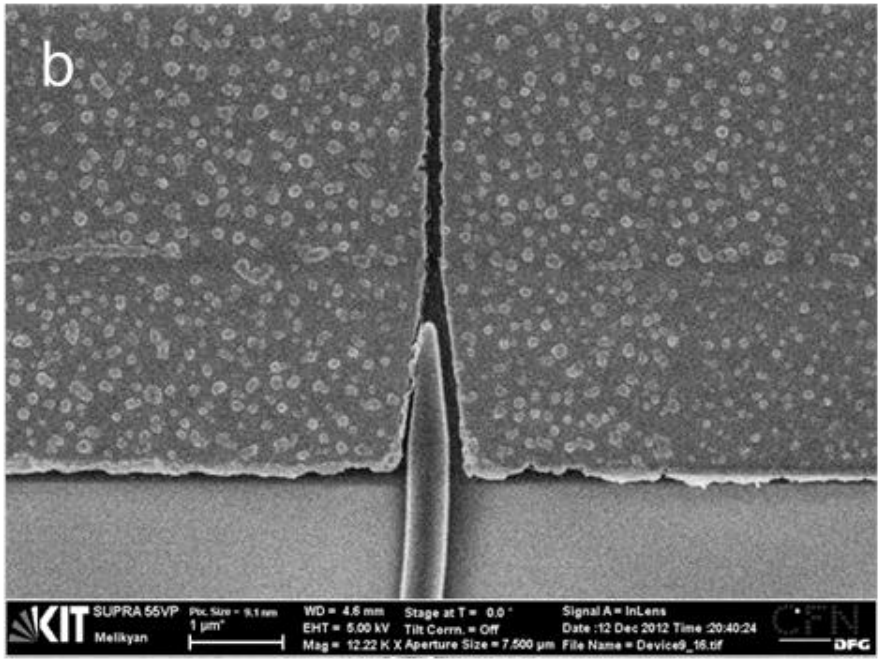
Milestone 11: Fabrication of plasmonic modulator on a SOI platform (with IMEC)



Milestones

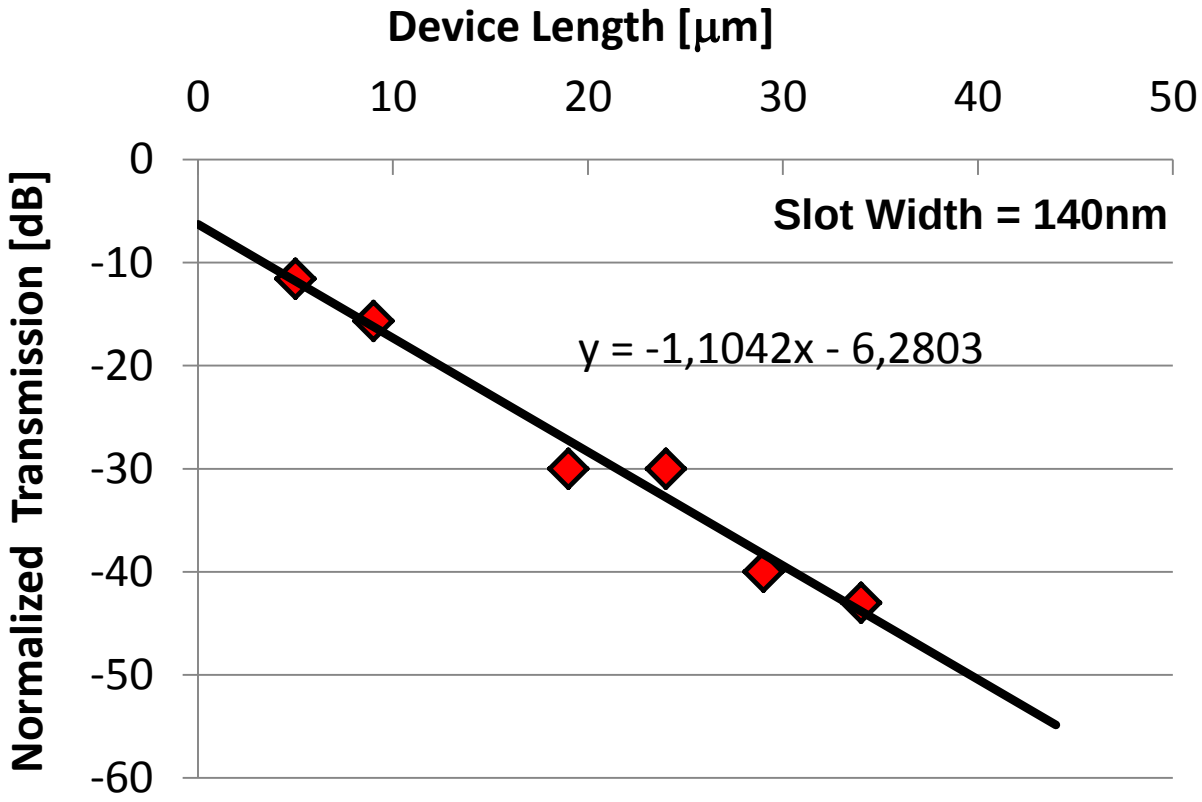
Milestone 11: Fabrication of plasmonic modulator on a SOI platform (with IMEC)





New cut-back measurement

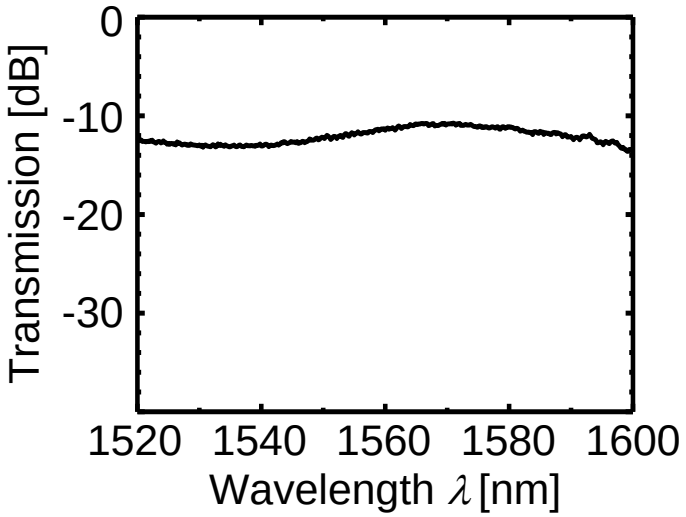
Milestone 11: Fabrication of plasmonic modulator on a SOI platform (with IMEC)



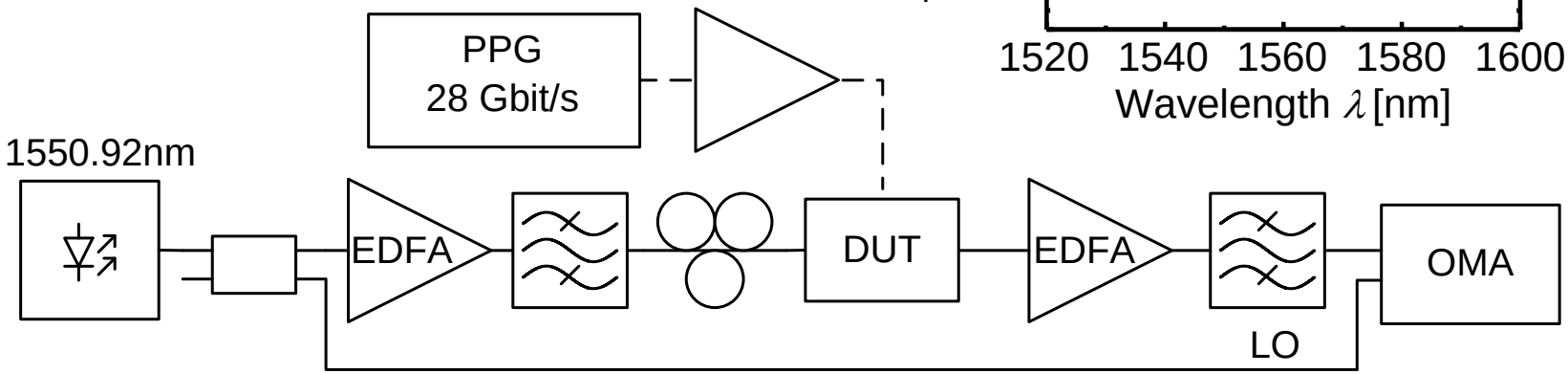
Coupling loss is ~3dB per metal taper!

Modulation Experiments

Optical Transmission



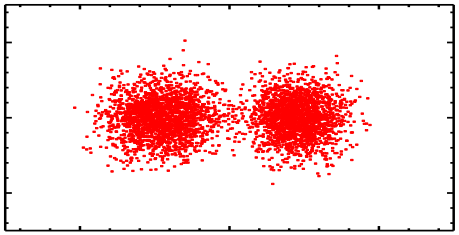
Data Experiment



28 Gbit/s

EVM = 43.3%

BER = 4.4× 10^{-3}



Milestones

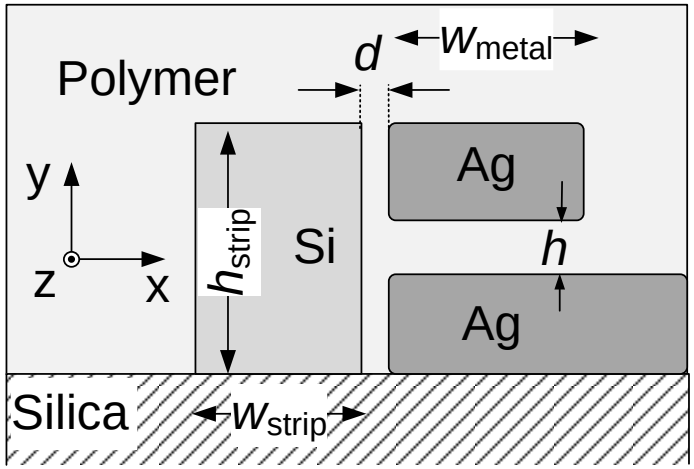
Milestones

MS37	Plasmonic active device characterization results	6	KIT	12	10/2012
MS11	Fabrication of plasmonic modulator on a SOI platform	3	KIT	15	01/2013
MS18	Demonstration of conductive QD layers with photoconductive properties	4	UVEG	15	01/2013
MS19	Demonstration of metal-(lithographic) polymer and QD metal-(lithographic) polymer nanocompo-sites	4	UVEG	15	01/2013
MS29	Data codecs for power consumption reduction	5	ST	15	01/2013
MS30	Decision on plasmonic waveguide couplers with less than 3 dB coupling loss	5	KIT	15	01/2013
MS46	Identification of possible contributions to the industrial partners for commercialization	7	ST	15	01/2013

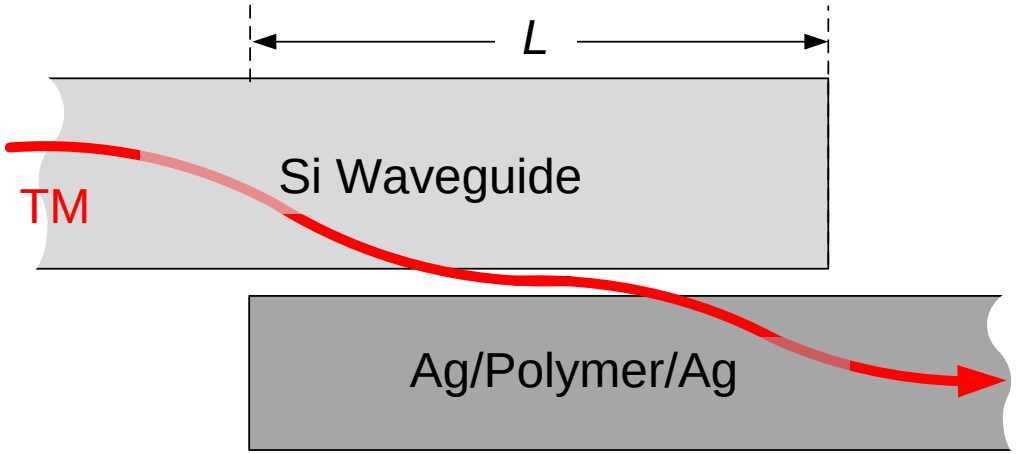
Milestones

Milestone 30: Decision on plasmonic waveguide couplers with less than 3 dB coupling loss

(a) Cross Section



(b) Top View



Studied with the eigenmode expansion method.

Details can be found in the milestone report:

Milestone 30: Decision on plasmonic waveguide couplers with less than 3 dB coupling loss

Photoluminescence in the Metal Slot (KIT)

- **QDs are recieved from IMEC** √
- **Fabrication of the metal slot** √
- **Final lithography for the QD lift-off** **X**