NAVOLCHI

SEVENTH FRAMEWORK PROGRAMME

Unit of Materials and Optoelectronic Devices

University of Valencia

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ICMUV
INSTITUT DE CIÈNCIA DELS MATERIALS de la Universitat de València

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Current State of the work

Phone Conference May 26th 2014

Outline

1-Deliverables and milestones

2-Current Status of the work

2.1-Plasmonic amplifiers by using polymers doped with QDs

2.2-Photodetectors based on QDs and polymers

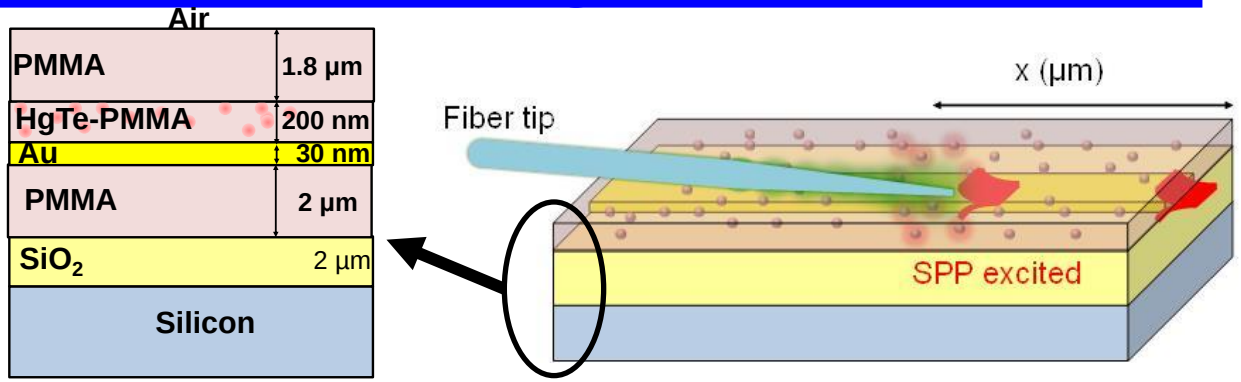
Deliverables and Milestones

	Names of the Milestones	Month	Partner
MS24	Demonstration of SPP amplifiers with electrical injection exhibiting 10dB/cm gain	30	UVEG

	Names of the Deliverables	Month	Partner
D4.4	Report on SPP amplifiers by using QDs	30	IMEC
D4.5	Report on plasmonic photodetectors	33	UVEG

Plasmonics amplifiers: HgTe

Plasmonic waveguides at 1550 nm



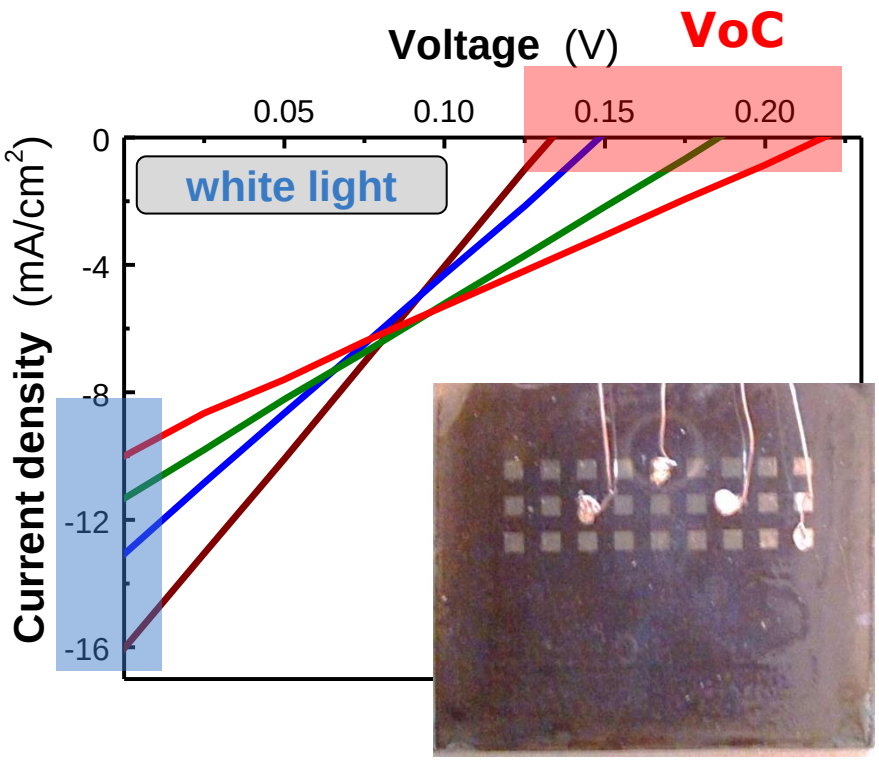
- **Propagation length characterization with a fiber tip :** Lp~50 µm
- **Losses compensation with a fiber tip+pump beam:** ~10 % enhancement

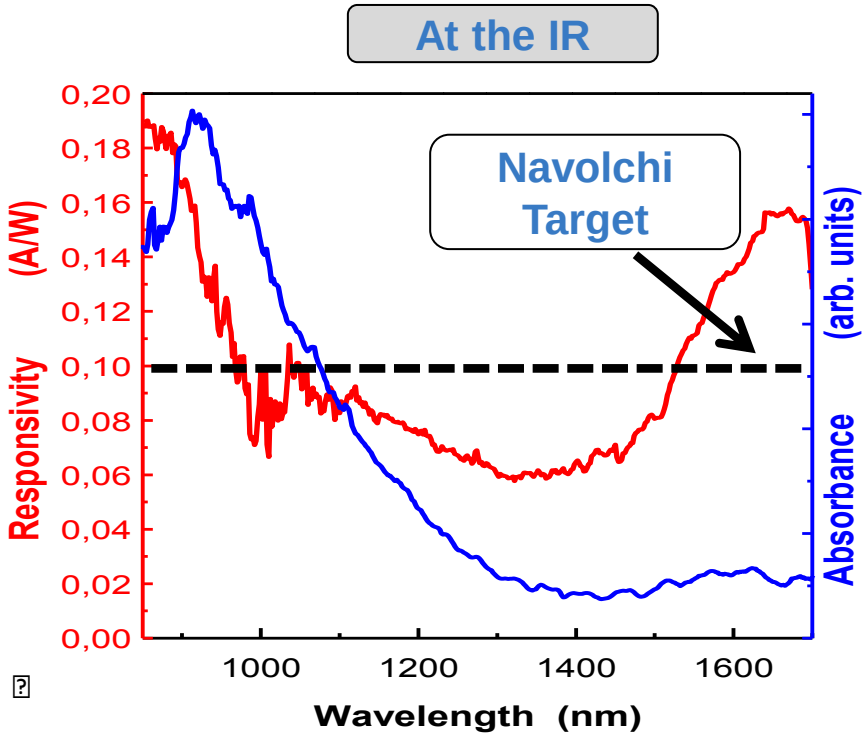
➔ **High filling factor** needed to obtain **good PL** signal, but it implies **roughness**

- Larger losses than expected
- Compensation limited

→
- Smoothing + high ff
- New HgTe QDs?

Photodetectors: Schottky





- Good reproducibility and air-stable
- R = 0.2 A/W at 900 nm, 0.16 A/W at 1600 nm (exciton absorption)
- Need to optimize photodiode using other electrodes (Al, ZnO)
- Microgap-photoconductor currently under study using interdigitated electrodes.