

PROJECT FINAL REPORT

Use and Dissemination of Foreground, Section B

Grant Agreement number: 288869

Project acronym: NAVOLCHI

Project title: Nano Scale Disruptive Silicon-Plasmonic Platform
for Chip-to-Chip Interconnection

Funding Scheme: Collaborative Project

Period covered: from 2012-11-01 to 2015-07-31

Name, title and organisation of the scientific representative of the project's coordinator¹:

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¹ Usually the contact person of the coordinator as specified in Art. 8.1. of the Grant Agreement.

² The home page of the website should contain the generic European flag and the FP7 logo which are available in electronic format at the Europa website (logo of the European flag: http://europa.eu/abc/symbols/emblem/index_en.htm logo of the 7th FP: http://ec.europa.eu/research/fp7/index_en.cfm?pg=logos). The area of activity of the project should also be mentioned.

**Section B (Confidential³ or public: confidential information to be marked clearly)
Part B1**

TEMPLATE B1: LIST OF APPLICATIONS FOR PATENTS, TRADEMARKS, REGISTERED DESIGNS, ETC.					
Type of IP Rights ⁴ :	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant (s) (as on the application)
Patent	Yes		61/979, 2014	Metal grating coupler for membrane-based integrated photonics	M. Dolores-Calzadilla, A. Higuera Rodriguez, D. Heiss

³ Note to be confused with the "EU CONFIDENTIAL" classification for some security research projects.

⁴ A drop down list allows choosing the type of IP rights: Patents, Trademarks, Registered designs, Utility models, Others.

Part B2

Type of Exploitable Foreground ⁵	Description of exploitable foreground	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Exploitable product(s) or measure(s)	Sector(s) of application ⁶	Timetable, commercial or any other use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary(s) involved
GENERAL ADVANCEMENT OF KNOWLEDGE	DESIGN OF MOVABLE GRATINGS	YES	NA	RECONFIGURABLE PHOTONIC ICs	TELECOM	2020	KNOW HOW	IMEC
GENERAL ADVANCEMENT OF KNOWLEDGE	HgTe QDOT SYNTHESIS	YES	NA	OPTICAL AMPLIFIER	TELECOM, DATACOM	2020	LICENCING OF PROCESS DETAILS	UGENT

Design movable gratings (imec)

Purpose: In WP5 we designed and characterised movable grating couplers that can be electrostatically actuated using an applied voltage.

How: There is an increasing need for reconfigurable optical integrated circuits, for use e.g. in large switch networks. Classical approaches such as using heaters tend to be power hungry. The electrostatically actuated devices developed in NAVOLCHI exhibit very low power consumption and hence could provide a solution for this need.

IPR protection: IMEC build up considerable knowhow in processing these reconfigurable devices, starting from standard processed SOI photonic ICs.

Further research is needed in adapting these devices to a given application.

Synthesis HgTe QDots (UGent)

Purpose: In WP4 UGent developed an improved synthesis for HgTe QD and showed that these QDs can exhibit ultra-low threshold gain

How: Integration with waveguides for building optical amplifiers. Such devices should be shorter in length than EDFA-type amplifiers and cheaper than III-V semiconductor devices.

Protection: the synthesis details have been kept internally and can be licensed

Further research needed: gain was shown in solution and in films but not in an actual device yet. Further effort is needed to protect the QDs from the environment.

¹⁹ A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.

⁶ A drop down list allows choosing the type sector (NACE nomenclature) : http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

