MARIE SKŁODOWSKA-CURIE INDIVIDUAL FELLOWSHIPS 2019

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

NOVA School of Science and Technology | Uninova – Instituto de Desenvolvimento de Novas Tecnologias

RESEARCH GROUP AND URL

CTS - Centre of Technology and Systems

SUPERVISOR (NAME AND E-MAIL)

Alessandro Fantoni
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SHORT CV OF THE SUPERVISOR

Education:
MsC in Applied Mathematics : Unniversity of Camerino (Italy) 1992
PhD in Material Science, Microelectronics and Optoelectronics, New University of Lisboan (Portugal) 1999
Present position:
Professor at ISEL (Instituto Superior de Engenharia de Lisboa), since 1999
Integrated member of the research center CTS –(Centre of Technology and Systems) since 2008
Coordination of research projects:

- (2018-2021) AC nº 02/SAICT/2017 - nº 031311 – PhotoAki : Photonic Biosensor for point of care and Early Diagnostics of Acute Kidney Injury
- IPL IDI&CA IPL/2019/BioPlas: Plasmonic Biosensors
- IPL IDI&CA IPL/2018/aSiphoto: amorphous silicon photonics
- IPL IDI&CA IPL/2017/EMGRAPH_ISEL Embedded graphene for thin-film photodetectors
- IPL IDI&CA IPL/2016/MANASE_ISEL, Magnetic Nanoparticles and Semiconductors: Design and characterization of local plasmonic effects in photonic devices.

5 SELECTED PUBLICATIONS

- Fantoni, A., Fernandes, M., Vygranenko, Y., Louro, P., Vieira, M., Silva, R. P. O., ... & Alegria, E. C. (2018). Analysis of metallic nanoparticles embedded in thin film semiconductors for optoelectronic applications. *Optical and Quantum Electronics*, *50*(6), 246.

- Lourenço, P., Fantoni, A., Fernandes, M., Vygranenko, Y., & Vieira, M. (2018). Finite-difference time-domain analysis of hydrogenated amorphous silicon and aluminum surface plasmon waveguides. *Optical Engineering*, *57*(7), 077103.

- Fantoni, A., Stojkovic, V., Fernandes, M., Vieira, M., Alegria, E. C., & Ribeiro, A. P. (2019, February). Plasmonic properties of gold nanospheres coupled to reduced graphene oxide for biosensing applications. In *2019 IEEE 6th Portuguese Meeting on Bioengineering (ENBENG)* (pp. 1-4). IEEE.

- Fantoni, A., Viera, M., & Martins, R. (2002). Influence of the intrinsic layer characteristics on a-Si: H p–i–n solar cell performance analysed by means of a computer simulation. *Solar energy materials and solar cells*, *73*(2), 151-162.

- Fantoni, A., Vieira, M., & Martins, R. (1999). Simulation of hydrogenated amorphous and microcrystalline silicon optoelectronic devices. *Mathematics and Computers in Simulation*, *49*(4-5), 381-401.

PROJECT TITLE AND SHORT DESCRIPTION

Waveguides by Blue laser recrystallization

The main objective of this project is the development of system for waveguide profiling using the recrystallization process of amorphous silicon using a blue laser. Development of control electronic system for positioning and laser power management is required. Passive waveguide devices, like waveguide gratings and directional couplers will be developed. Numerical simulation by FDTD and BPM methods will be used for device dimensioning and projecting. The final goal is the application of the waveguide devices in biomedical systems.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST

Optoelectronics | Material Science