

Dr. Dana Cristea (female) MSc in Electronics and PhD in Optoelectronics from “Politehnica” University, Bucharest, Romania. She is the head of Microphotonics Lab and the manager of the Core program IMT. Between 2002 and 2008 she was the Scientific manager of IMT. Her main research activities are in the fields of optoelectronic devices, photonic integrated circuits, optical-MEMS, micro-optics integration technologies. She is author or co-author of more than 100 papers published in journals and Conference Proceedings and holds 5 patents. Dr. Dana Cristea coordinated more than project 25 national projects, participated in several FP6 and FP7 projects (WAPITI, 4M, ASSEMIC, FlexPAET) and was the vice-coordinator of the FP7 Project MIMOMEMS. She is currently scientific manager in two projects aiming at knowledge transfer to SMEs and in R&I projects on optoelectronic devices based on QDs and nanoplasmonic structures.

Education:

- MSc in Electronics – 1982-“Politehnica” University, Bucharest, Romania.
- PhD in Optoelectronics and Materials for Electronics - 1989 - “Politehnica” University, Bucharest, Romania.

Employment

Since 1994 **National Institute for R&D in Microtechnologies- IMT Bucharest**

- senior researcher
- head of Microphotonics Lab (since 1997)
- head of Department for Multidisciplinary Research and Scientific Director (2002 -2008).
- Manager of the IMT Core Program (since 2016)

Since 1991 “**Politehnica” University Bucharest, Faculty of Electronics**

- associate professor (optoelectronics, integrated optics)

Previous employment:

1982-1994 Research Institute for Electronic Components, Bucharest

- research scientist in the Optoelectronics Laboratory

Relevant research areas:

- Silicon *photodetectors and optoelectronic integrated circuits* - over 20 certified photodetectors and optoelectronic ICs.
- Nano- and optoelectronic devices based on graphene. graphene composites and QDs (field effect, transistors, Schottky photodiode.)
- *Plasmonic nanostructures and metasurfaces- for photodetectors, filters, absorbers.*
- *Photonic integrated circuits* for chemo-optical and biophotonic sensors (waveguides integrated with photodiodes for gas sensors, SPR-based sensors, microring resonators for bio-phonic sensors):
- *Microoptics-* diffractive optics for security applications- design, modeling, new fabrication technique

Relevant expertise as a evaluator and reviewer :

- **H2020 and FP7 proposal and projects:** ICT-Photonics and FET-Open
- **Scientific papers:**
 - *IEEE* Trans. on Electron Dev.;
 - Journal of Applied Physics (**AIP**);
 - RSC Advances, Lab on a Chip and Journal of Materials Chemistry (**Royal Society of Chemistry**);
 - Journal of Micro/Nanolithography, MEMS, and MOEMS (**SPIE**);
 - J. Smart Structures and Systems; Journal of Sol-Gel Science and Technology (*Springer*); Optical Materials, Sensor and Actuators (**Elsevier**);
 - IEEE ESSDERC 2013-2017; IEEE International Semiconductor Conference 1992-2016; International Conference on Electronics, Circuits and Systems IECS
- Member of TPC for **IEEE ESSDERC** Conference- since 2013.

Recent EU projects

- **TGE-Plat-** Knowledge transfer to Romanian SMEs- area KETs for safety and security (ERDF project- 2016-2020- *scientific manager (activity focused focus on diffractive optics for security application)*)
- **FLEXPAET-** Flexible Patterning of Complex Micro Structures using Adaptive Embossing Technology (IP- FP7- NMP) member in steering WP leader, *leader of the Romanian team*
- **MOMOMEMS-** European Centre of Excellence in Microwave, Millimetre Wave and Optical Devices, based on Micro-Electro-Mechanical Systems for Advanced Communication Systems and Sensors- (FP7-Capacities)– *vice-coordinator*
- **WAPITI** - Waferbonding and Active Passive Integration Technology and Implementation - STREP FP6/IST –Photonics
- **4M-** Multi-Material Micro Manufacture: Technologies and Applications NoE FP6/NMP - team leader for micro-optic cluster

Recent National projects (coordinator)

- *Fabrication of high quality holographic labels for product identification* - (2016-2018)-National Program PNIII
- *Technology for multispectral photodetectors with applications in observation and surveillance optical systems* (2016-2018)-)-National Program PNIII
- *Thin film photodetectors - new concepts and studies for aerospace applications*, program “STAR or Romanian Space Agency”, 2012-2015
- *Plasmonic nanostructures and metasurfaces for light concentration and manipulation (focus on IR , SWIR, MIR wavelength range)*- IMT Core Program
- *Multifunctional molecular architectures for organic electronics and nanotechnology-* theoretical and experimental studies National project- program « Ideas », 2009-2011

Patents

- R.Muller, P.Obreja, D.Cristea, E.Manea, M.Kusko, *Fabrication process for silicon based biosensor integrated with a polymeric optical waveguide*, OSIM, Patent No 122382,
- P.Obreja, D.Cristea, M.Kusko, R. Rebigan, *Replication technology for polymer-based optical microresonators* , OSIM, Patent A/01026/
- D.Cristea, F.Craciunoiu *Fabrication of an optical field effect transistor* ; OSIM, Patent No. 120514/
- D.Cristea, E.Manea, *Method for freestanding micromechanical structures fabrication using Si<111> etching techniques*, OSIM, Patent 119424

Relevant publications- selective list

- D. Cristea, et. al, *Solution processable PbS quantum dots/silicon multispectral detectors*, Proc. of the **46th IEEE European Solid-State Device Research Conference (ESSDERC)**, Lausanne, Switzerland, Sep. 12-15, 2016, pp. 105-108
- L.Predoana, D.Cristea, et.al, *Nanostructured Er³⁺-doped SiO₂-TiO₂ and SiO₂-TiO₂-Al₂O₃ sol-gel thin films for integrated optics*, **Optical Materials** **246** (2015) pp. 481–490.
- R. Tomescu, D. Cristea, et al, *Realization of spiral phase plates by 3D lithography*, **Proceedings of SPIE** Volume: 9258, Article Number: 92581S, 2015
- A.C.Obreja, D.Cristea, et. al, *Charge transport and memristive properties of graphene quantum dots embedded in poly(3-hexylthiophene) matrix*, **Applied Physics Letters** **105**, 083303 (2014);
- A.C.Obreja, D.Cristea, et.al., *Isocyanate functionalized graphene/P3HT based nanocomposites*, **Applied Surface Science** **276** , pp.458– 467, 2013
- P.Obreja, D.Cristea, C.Kusko, R.Gavrila, I.Mihalache, M.Daniala, A.Dinescu, *Study of zinc oxide quantum-dot thin films for memristive devices*, European Materials Research Society Spring Meeting 2015 (EMRS-2015) Lille, France,
- C.Kusko, C. Obreja, A.Radoi, D.Cristea, *Memory properties of graphene quantum dots embedded in a polymeric matrix*, European Materials Research Society Spring Meeting 2015 (EMRS-2015) ,Lille, France, 11- 15 May, 2015.
- D.Cristea, A.Dinescu, P.Obreja, C. Obreja, C. Kusko Research results on graphene processing technologies for nanoelectronics and photonics", Trends in Nanotechnology International Conference (TNT2014), Barcelona-Spain, October 27-31, 2014
- D.Cristea, C.Obreja, P.Obreja, R.Gavrila Graphene-P3HT nanocomposite/n-type silicon photodetectors, **5th EOSTopical Meeting on Optical Microsystems (OμS'13)**, 12-14 Septeber2013, Italy.
- R. Tomescu, Cristea, et al., Design and simulation of dielectric-loaded surface plasmon waveguides with applications in the visible range, **Proceedings of SPIE** Volume: 8411 Article Number: UNSP 84112Z , 2012.
- P. Obreja, D. Cristea, A. Dinescu, C. Parvulescu, Soft patterning methods for manufacturing of micro and nano-optical components, **Proc. IEEE Semiconductor Conference (CAS)**, pp. 83-86, 2011
- A.C. Obreja, D. Cristea, R. Gavrila, V. Schiopu, A. Dinescu, M. Danila, Functionalized graphene/poly 3-hexyl thiophene based nanocomposites, **Proc. IEEE Semiconductor Conference (CAS)**, Semiconductor Conference (CAS), 2011 pp. 27-30.
- R Rebigan, A Dinescu, C Kusko, R Gavrila, D Cristea, C Obreja, P Schiopu, Suspended polymeric photonic crystals–simulation and fabrication, Proc. SPIE Advanced Topics in Optoelectronics, Microelectronics, and Nanotechnologies, 78211H-78211H-9
- Kusko, M; Kusko, C; Cristea, D, Method of determination of light-scatterer distribution in edge-lit backlight units using an analytical approach , **Journal of the optical Society of America A-Optics Image science and vision** **27** ; pp 2015-2020 , 2010
- P. Obreja, D. Cristea, V. S. Todorescu, A. Dinescu, A.C. Obreja, F. Comanescu, R.Rebigan , Preparation and patterning of nanoscale hybrid materials for micro-optics, **J. Optoelectronics and Advanced Materials****12**, p. 2007-2013, 2010.
- D.Alexandropoulos, H.Simos, M.Kusko, D.Cristea, D.Syvridis, N.A Vainos, Microring resonators with enhanced tolerance to fabrication misalignments, **J. Opt. A: Pure Appl. Opt.** **11** (2009) 125401 (6pp)