Raju Mundru

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Education

2009-2014 PhD., Engineering
Louisiana Tech University, Ruston LA 71272
Thesis: On electromagnetic and quantum invisibility.

2008-2014 M.Sc., Electrical Engineering
Louisiana Tech University, Ruston LA 71272
Practicum: Analytical and numerical analysis of a generic cloaking system.

2003-2007 B. Tech., Electronics and Communication Engineering
Jawaharlal Nehru Technological University, Hyderabad AP 500085
Project: Multiplierless FIR Filter Design.

Research Interests

- Electromagnetic properties of nano–structured complex media including: metal composites, rough surfaces, fractal aggregates, and ordered media
- Optical and Quantum scattering, Nanophotonics and quantum optics, nonlinear optics and spectroscopy, quantum dots, nanoscopic lasers and optical elements
- Artificial materials: metamaterials and negative index media, electric and magnetic plasmons, electromagnetic cloacking

Teaching Experience

2017-Now Assistant Professor
Point Park University, Pittsburgh PA 15222

- ET 204 Programming for Engineering Technology (Python)
- PHYS 101 & 102 Physics & Lab (traditional & online)
- PHYS 201 & 202 Calc-based Physics & Lab
- EE 375 Signals & Systems
- EE 415 Electromagnetics
- EE 445 Control Systems
- EE 465 Communication Electronics

- EE 467 Digital Signal Processing

2016-2017 Assistant Professor
Eastern New Mexico University, Portales NM 88130

- EET 241 & 241L Logic Circuits and Lab
- EET 340 Computer Organization and Architecture
- EET 472 & 472L Microprocessor and Microcontroller Interfacing and Lab
- EET 490 Capstone
- EET 242 & 242L Sequential Circuits and Applications
- EET 342 Advanced Computer Organization and Architecture

2015-2016 Visiting Lecturer
Louisiana Tech University, Ruston LA 71272

- PHYS 201 Physics for Engineers & Scientists I
- ELET 260 Electronic Circuit Theory I
- ELET 272 Electronic Circuit Theory II
- ELET 270 Instrumentation
- ELET 170 Electrical Networks I
- ELET 180 Electrical Networks II
- ELET 460 Digital Data Communication and Networks

2014-2015 Adjunct Lecturer
Louisiana Tech University, Ruston LA 71272

- PHYS 201 Physics for Engineers & Scientists I
- PHYS 202 Physics for Engineers & Scientists II

Curriculum Development

2018-2019 Developed Digital Signal Processing (along with Dr. Greg Johnson) and revised Control Systems course for Electrical Engineering program at Point Park University.

2017-2018 Developed Signals & Systems course along with labs for Electrical Engineering program at Point Park University.

2016-2017 Developed Computer Organization, Advanced Computer Organization, Microcontrollers & Interfacing and Digital Circuits I & II courses for Electronics Engineering and Technology program at Eastern New Mexico University.

2015-2016 Developed Semiconductor Devices and Circuits I & II for the Electrical Engineering and Technology program at Louisiana Tech University.

Service

2018-Pre Committee Member

- Curriculum Committee Member.
- Department Curriculum and Scheduling Committee.
- Career Services Department Committee.
- Department Capital Equipment and Lab Committee.

2018-2019 Search Committee Member

- EE faculty Search Committee Member.
- CET faculty Search Committee Member.

2017-2018 Faculty volunteer

- Judge and Presenter at the 80th Covestro Pittsburgh Regional Science and Engineering Fair on Mar 29 to 30, 2018.
- Point Park University pioneer experience Jun 15 to Aug 13, 2018.
- Point Park University admitted students day on 14 Apr 2018.
- Point Park University undergraduate open house on Feb 03, 2018.
- Point Park University pioneer experience on Jan 05, 2018.

2016-2017 Faculty volunteer

- Judge at the Southeastern New Mexico regional student research challenge on Mar 17, 2017.
- ENMU's Green & Silver Day hosting high school seniors on Nov 4, 2016.
- ENMU's College EXPO hosting freshmen and sophomores Oct 5, 2016.

2015-Now Reviewer

- Journal of Optics.

Awards

2014 Our paper "Quasi-effective medium theory for multilayered magneto-dielectric structures" , was selected by the editors for inclusion in the exclusive 'Highlights of 2014' research collection because of its novelty, scientific impact and broadness of appeal.

2014 Our paper "Quasi-effective medium theory for multilayered magneto-dielectric structures" , was featured on the cover of Journal of Optics.

2012 Our paper "Material- and geometry-independent multi-shell cloaking device, has been selected by the editors of Physical Review B to be an Editors' Suggestion.

2012 SPIE Optics+Photonics 2012 graduate student travel grant.

2011 LONI Graduate Fellowship. Louisiana Optical Network Initiative (LONI). The award recognizes the top three scoring research proposals from all branches of computational sciences.

2010 Travel grant form South Eastern American Physical Society Meetings, Louisiana State University, Baton Rouge, LA.

Professional Activities

- The International Society for Optics and Photonics (SPIE)
- Optical Society of America (OSA)
- American Physical Society (APS)
- Institute of Electrical and Electronics Engineers (IEEE)
- Reviewer for Journal of Optics (JOPT)

Publications

- V. Pappakrishnan, P. C. Mundru, D. A. Genov, "Repulsive Casimir force in magnetodielectric plate configurations, " Phys. Rev. B, 045430 (2014).
- D. A. Genov and P.C. Mundru,"Quasi-effective medium theory for multilayered magneto-dielectric structures," J. Opt. 16, 015101 (2014). (featured on the cover of the magazine)
- P. C. Mundru, V. Pappakrishnan and D. A. Genov, "Material- and geometry-independent multi-shell cloaking device," Phys. Rev. B 85, 045402 (2012). (selected by the editors of the journal to be Editors' Suggestion)
- P. C. Mundru (Poster Presentation), V. Pappakrishnan and D. A. Genov, "Generic Cloaking Device," SPIE Optics+Photonics 2012, San Diego, CA (August, 12-16, 2012).
- P. C. Mundru (Poster Presentation), V. Pappakrishnan and D. A. Genov, "Multishell Generic Cloaking Device," The 2012 Mardi Gras Conference Computational Materials and Biosystems, Louisiana State University, Baton Rouge, LA (February 16-18, 2012).
- V. Pappakrishnan (Poster Presentation), P. C. Mundru and D. A. Genov, "Casmir force reversal using metamaterials," The 2012 Mardi Gras Conference Computational Materials and Biosystems, Louisiana State University, Baton Rouge, LA (February 16-18, 2012).
- P. C. Mundru (Presenter) and D. A. Genov, "Analytical and Numerical analysis of a Generic Cloaking Device," March Meeting of The American Physical Society (APS), Dallas, TX (March 24, 2011).
- P. C. Mundru (Presenter) and D. A. Genov, "Mathematical Theory and Design of a Generic Cloaking Device," Louisiana Academy of Sciences 85th Annual Meeting, Monroe, LA (Feb 26, 2011).