

## Romil Audhkhasi

Email: raudhkha@usc.edu

### Education

- **Doctor of Philosophy in Electrical Engineering (Fall 2017 –)**  
University of Southern California  
GPA: 3.87/4
- **Bachelor of Technology in Engineering Physics (Fall 2013 – Spring 2017)**  
Indian Institute of Technology, Delhi, India  
GPA: 9.38/10

### Research Interests

Microphotonics, Plasmonics, Infrared detectors

### Awards and Honors

- Ming Hsieh Scholar, USC (Fall 2020 – Fall 2021)
- Annenberg Fellow, USC (Fall 2017 –)
- Ranked 1<sup>st</sup> out of 65 students in the 2013 B. Tech. Engineering Physics batch of IIT Delhi for four consecutive semesters from Fall 2014 to Spring 2017.
- Summer Undergraduate Research Award, IIT Delhi (2015).
- Awarded Dean's Merit Award for being among top 7% students of IIT Delhi for four consecutive semesters during 2014–2016.
- Ranked 3139 out of 1,400,000 candidates from all over India in IIT Joint Entrance Examination (JEE) – Mains and 3460 in IIT JEE – Advanced during 2013.

### Journal Publications

1. **R. Audhkhasi** and M. L. Povinelli, "Vanadium-dioxide microstructures with designable temperature-dependent thermal emission," *Optics Letters* **46**(7), 1768 – 1771 (2021)
2. **R. Audhkhasi** and M. L. Povinelli, "Gold-black phosphorus nanostructured absorbers for efficient light trapping in the mid-infrared," *Optics Express* **28**(13), 19562–19570 (2020)
3. **R. Audhkhasi** and M. L. Povinelli, "Spectral emissivity design using aluminum-based hybrid gratings," *Optics Express* **28**(6), 8076–8084 (2020)
4. **R. Audhkhasi** and M. L. Povinelli, "Design of far-field thermal rectifiers using gold – vanadium dioxide micro-gratings," *Journal of Applied Physics* **126**(063106), 1–7 (2019)
5. R. Verma, **R. Audhkhasi**, K. Thyagarajan and V. Banerjee, "Photonic crystals: role of architecture and disorder on spectral properties," *Journal of the Optical Society of America A* **35**(3), 370–376 (2018)

## Conferences proceedings

1. **R. Audhkhasi** and M. L. Povinelli, "Vanadium-dioxide microstructures with enhanced thermal emission tunability (oral presentation)," SPIE Optics+Photonics (2021)
2. M. L. Povinelli, A. M. Morsy and **R. Audhkhasi**, "Modulation of emissivity in coupled-resonator systems (oral presentation)," SPIE Optics+Photonics (2021)
3. **R. Audhkhasi** and M. L. Povinelli, "Microstructures with designable temperature-dependent thermal emission (oral presentation)," CLEO: Applications and Technology (2021)
4. **R. Audhkhasi** and M. L. Povinelli, "Enhanced light trapping in the mid-infrared using gold-black phosphorus nanostructured absorbers (oral presentation)," SPIE Photonics West (2021)
5. **R. Audhkhasi** and M. L. Povinelli, "Spectral emission tailoring using aluminum-based hybrid gratings (oral presentation)," SPIE Photonics West (2021)
6. **R. Audhkhasi** and M. L. Povinelli, "Efficient light trapping in the mid-infrared using gold-black phosphorus nanostructured absorbers (oral presentation)," Metamaterials (2020)
7. **R. Audhkhasi** and M. L. Povinelli, "Aluminum-based hybrid gratings for infrared spectral emissivity design (oral presentation)," Metamaterials (2020)
8. **R. Audhkhasi** and M. L. Povinelli, "Efficient Light Trapping in the Mid-infrared Using Gold-black Phosphorus Nanostructured Absorbers (oral presentation)," FiO LS (2020)
9. **R. Audhkhasi** and M. L. Povinelli, "Design of Aluminum-based Hybrid Gratings with Predefined Infrared Spectral Response (oral presentation)," FiO LS (2020)
10. **R. Audhkhasi** and M. L. Povinelli, "Achieving efficient light trapping in the infrared using gold-black phosphorus nanostructured absorbers (poster presentation)," SPIE Optics+Photonics (2020)
11. **R. Audhkhasi** and M. L. Povinelli, "Aluminum-based hybrid gratings for spectral synthesis in the infrared (poster presentation)," SPIE Optics+Photonics (2020)
12. **R. Audhkhasi** and M. L. Povinelli, "Achieving far-field thermal rectification using gold-vanadium dioxide micro-gratings (oral presentation)," SPIE Photonics West (2020)
13. **R. Audhkhasi** and M. L. Povinelli, "Enhanced far-field thermal rectification using gold-vanadium dioxide micro-gratings (poster presentation)," MHI Research Festival (2019)
14. **R. Audhkhasi** and M. L. Povinelli, "Design of tunable infrared absorbers based on vanadium dioxide (oral presentation)," SPIE Optics+Photonics (2019)

## Teaching Assistance

- Served as TA for an undergraduate course in Mathematical Physics during Fall 2016.
- Held discussion sessions and helped with exam grading.

- Held discussion sessions for PHYS 171 at USC (one session during Spring 2019 and four sessions during Spring 2020).

**Computer Skills**

- **Languages and packages:** MATLAB, Octave, C/C++
- **Maxwell Equation Solver packages:** Lumerical FDTD Solutions, TMM
- **Optical Simulation Softwares:** WinLens 3D, OSLO
- **Operating systems:** Linux, Windows, Mac OS