

## SEONGSHIK OH, PROFESSOR

Department of Physics and Astronomy, Rutgers, The State University of New Jersey  
136 Frelinghuysen Road, Piscataway, NJ 08855-0849, <http://mbe.rutgers.edu>  
Office: 848-445-8754; Fax: 732-445-4343; ohsean@physics.rutgers.edu

### Professional Preparation

Seoul National University (SNU), S. Korea	Physics, B.S.	1992
Seoul National University (SNU), S. Korea	Physics, M.S.	1994
Univ. of IL. (UIUC), Urbana, IL	Physics, Ph.D.	2003
Univ. of IL. (UIUC), Urbana, IL	Postdoc	2003 – 2004
NIST, Boulder, CO	Postdoc	2004 – 2007

### Appointments

Professor	Rutgers University	2018 – present
Vice Chair	APS GQMS (APS focus Group on Quantum Materials Synthesis)	2023 – present
Co-Director	cQMS (Rutgers center for Quantum Materials Synthesis)	2017 – present
Associate Professor	Rutgers University	2013 – 2018
Assistant Professor	Rutgers University	2007 – 2013
Postdoctoral Researcher	NIST, Boulder, CO	2004 – 2007
Postdoctoral Researcher	UIUC, Urbana, IL	2003 – 2004
Graduate Assistant	UIUC, Urbana, IL	1997 – 2003
Meteorologist (1 <sup>st</sup> & 2 <sup>nd</sup> Lieutenant)	Korean Air Force, S. Korea	1994 – 1997
Graduate Assistant	SNU, S. Korea	1992 – 1994

### Honors and Recognitions

2017	Rutgers Patent Award
2014	GBMF EPiQS Materials Synthesis Investigator Award
2009	NSF Early CAREER Award
2006	NIST Outstanding Postdoctoral Poster Award
1997	Rotary International Ambassadorial Scholarship

### Publications (out of ~135, h-index 45)

1. Moore RG, Lu Q, Jeon H, Yao X, Smith T, Pai YY, Chilcote M, Miao H, Okamoto S, Li AP, Oh S, Brahlek M. Monolayer Superconductivity and Tunable Topological Electronic Structure at the Fe(Te,Se)/Bi<sub>2</sub>Te<sub>3</sub> Interface. *Adv Mater.* 2023:e2210940. PubMed PMID: [36921318](https://pubmed.ncbi.nlm.nih.gov/36921318/).
2. Yao X, Mazza AR, Han MG, Yi HT, Jain D, Brahlek M, Oh S. Superconducting Fourfold Fe(Te,Se) Film on Sixfold Magnetic MnTe via Hybrid Symmetry Epitaxy. *Nano Lett.* 2022, 22(18):7522-7526. PubMed PMID: [36070237](https://pubmed.ncbi.nlm.nih.gov/36070237/).
3. Yi HT, Jain D, Yao X, Oh S. Enhanced Quantum Anomalous Hall Effect with an Active Capping Layer. *Nano Lett.* 2023, 23(12):5673-5679. PubMed PMID: [37278509](https://pubmed.ncbi.nlm.nih.gov/37278509/).
4. Salehi M, Shapourian H, Rosen IT, Han MG, Moon J, Shibayev P, Jain D, Goldhaber-Gordon D, Oh S. Quantum-Hall to Insulator Transition in Ultra-Low-Carrier-Density Topological

- Insulator Films and a Hidden Phase of the Zeroth Landau Level. *Adv Mater.* 2019 31(36):e1901091. PubMed PMID: [31259439](#).
5. Moon J, Koirala N, Salehi M, Zhang W, Wu W, Oh S. Solution to the Hole-Doping Problem and Tunable Quantum Hall Effect in  $\text{Bi}_2\text{Se}_3$  Thin Films. *Nano Lett.* 2018, 18(2):820826. PubMed PMID: [29313354](#).
  6. Yao X, Brahlek M, Yi HT, Jain D, Mazza AR, Han MG, Oh S. Hybrid Symmetry Epitaxy of the Superconducting  $\text{Fe}(\text{Te},\text{Se})$  Film on a Topological Insulator. *Nano Lett.* 2021, 21(15):6518-6524. PubMed PMID: [34319741](#).
  7. Yao X, Gao B, Han MG, Jain D, Moon J, Kim JW, Zhu Y, Cheong SW, Oh S. Record High Proximity-Induced Anomalous Hall Effect in  $(\text{Bi}_x\text{Sb}_{1-x})_2\text{Te}_3$  Thin Film Grown on  $\text{CrGeTe}_3$  Substrate. *Nano Lett.* 2019, 19(7):4567-4573. PubMed PMID: [31185718](#).
  8. Wu L, Salehi M, Koirala N, Moon J, Oh S, Armitage NP. Quantized Faraday and Kerr rotation and axion electrodynamics of a 3D topological insulator. *Science.* 2016, 354(6316):1124-1127. PubMed PMID: [27934759](#).
  9. Oh S. Physics. The complete quantum Hall trio. *Science.* 2013, 340(6129):153-4. PubMed PMID: [23580518](#).
  10. Koirala N, Brahlek M, Salehi M, Wu L, Dai J, Waugh J, Nummy T, Han MG, Moon J, Zhu Y, Dessau D, Wu W, Armitage NP, Oh S. Record Surface State Mobility and Quantum Hall Effect in Topological Insulator Thin Films via Interface Engineering. *Nano Lett.* 2015, 15(12):8245-9. PubMed PMID: [26583739](#).

### **Synergistic Activities**

1. Founding member of a new topical group for quantum materials synthesis in American Physical Society (2023).
2. Conference organizer for professional society annual meetings, including the Symposium on Quantum Materials Synthesis 2016 (New York), 2022 (Hawaii) and 2024 (Okinawa)
3. Gordon and Betty Moore Foundation's EPiQS Materials Synthesis Investigator award (2014-2019)
4. Committee member of Materials Task Force for Rutgers University (2016)
5. On-site review panelist for NSF MRSEC (2018)