BIOGRAPHICAL SKETCH

NAME: Christopher M. Rouleau

POSITION TITLE & INSTITUTION: Research Staff Member, Center for Nanophase Materials Sciences

EDUCATION AND TRAINING

INSTITUTION	LOCATION	MAJOR/AREA OF STUDY	DEGREE	YEAR
University of Florida	Gainesville, FL	Materials Science & Engineering	Ph.D.	1994
University of Florida	Gainesville, FL	Materials Science & Engineering w/minor in Electrical Engineering	M.S	1991
Western New England University	Springfield, MA	Electrical Engineering	B.S.	1988

RESEARCH AND PROFESSIONAL EXPERIENCE

From – To	Position Title, Organization and Location
1998-present	Research Staff Member, Center for Nanophase Materials Sciences, Oak Ridge National Laboratory
1996-1998	Wigner Fellow, Materials Sciences & Technology Division, Oak Ridge National Laboratory
1994-1996	Postdoctoral Research Assistant, Solid State Division, Oak Ridge National Laboratory
1993	Visiting Scientist, 3M Company, St. Paul, MN

PUBLICATIONS

1. "Anomalous isotope effect on the optical bandgap in a monolayer transition metal dichalcogenide semiconductor," Yiling Yu, Volodymyr Turkowski, Jordan A Hachtel, Alexander A Puretzky, Anton V Ievlev, Naseem U Din, Sumner B Harris, Vasudevan Iyer, Christopher M Rouleau, Talat S Rahman, David B Geohegan, Kai Xiao, Science Advances **10**, 0758 (2024).
2. "Multiferroism in strained strontium hexaferrite epitaxial thin films," Joonhyuk Lee, Sam Yeon Cho, Inhwan Kim, Christopher M Rouleau, Kungwan Kang, Sangkyun Ryu, Yunseok Heo, Jong K Keum, Daniel M Pajerowski, Younghak Kim, Sang Don Bu, Jaekwang Lee, Hyoungjeen Jeen, Physical Review Materials **8**, 024401 (2024).
3. "Deposition and characterization of α-Fe_2O_3/Pd thin films for neutron reflectometry studies," Hanyu Wang, Ethan C Self, Sadhvikas J Addamane, Christopher M Rouleau, Ryan R Wixom, Katie L Browning, Gabriel M Veith, Liyuan Liang, James F Browning, J. Vac. Sci. Technol A **41**, 053202 (2023).
4. "Tuning Ionic Conductivity in Fluorite Gd-Doped $CeO2$-Bixbyite RE_2O_3 (RE = Y and Sm) Multilayer Thin Films by Controlling Interfacial Strain," Gene Yang, Mohammad El Loubani, Habib Rostaghi Chalaki, Jiwon Kim, Jong K Keum, Christopher M Rouleau, Dongkyu Lee, ACS Applied Electronic Materials **5**, 4556 (2023).
5. "Rare Decay with Implications for Fundamental Physics and Geochronology," M Stukel, L Hariasz, PCF Di Stefano, B Charlie Rasco, Krzysztof P Rykaczewski, Nathan T Brewer, Dan W Stracener, Yuan Liu, Z Gai, C Rouleau, J Carter, J Kostensalo, J Suhonen, H Davis, ED Lukosi, KC Goetz, Robert K Grzywacz, M Mancuso, F Petricca, A Fijałkowska, Marzena Wolińska-Cichocka, J Ninkovic, P Lechner, RB Ickert, Leah E Morgan, PR Renne, I Yavin, KDK Collaboration, Physical Review Letters **131**, 052503 (2023).

6. "Real-Time Diagnostics of 2D Crystal Transformations by Pulsed Laser Deposition: Controlled Synthesis of Janus WSSe Monolayers and Alloys," Sumner B Harris, Yu-Chuan Lin, Alexander A Puretzky, Liangbo Liang, Ondrej Dyck, Tom Berlijn, Gyula Eres, Christopher M Rouleau, Kai Xiao, David B Geohegan, ACS Nano **17**, 2472 (2023)
7. "Exploring the Spatial Control of Topotactic Phase Transitions Using Vertically Oriented Epitaxial Interfaces," Wenrui Zhang, Jie Zhang, Shaobo Cheng, Christopher M Rouleau, Kim Kisslinger, Lihua Zhang, Yimei Zhu, Thomas Z Ward, Gyula Eres, Nano Micro Letters **14**, 1 (2022).
8. "Stabilized Synthesis of 2D Verbeekite: Monoclinic $PdSe_2$ Crystals with High Mobility and In-Plane Optical and Electrical Anisotropy," Yiyi Gu, Lizhi Zhang, Hui Cai, Liangbo Liang, Chenze Liu, Anna Hoffman, Yiling Yu, Austin Houston, Alexander A Puretzky, Gerd Duscher, Philip D Rack, Christopher M Rouleau, Xiangmin Meng, Mina Yoon, David B Geohegan, Kai Xiao, ACS Nano **16**, 13900 (2022).
9. "Simulation of the Impact of Point Defects and Edge Dislocations on X-Ray Diffraction in Hexagonal $(Ni,Co)_{1+2x}Ti_{1-x}O_3$ Thin Films," Johannes Frantti, Yukari Fujioka, Christopher Rouleau, Alexander Puretzky, Physica Status Solidi B **259**, 2100583 (2022).
10. "Selective Antisite Defect Formation in WS2 Monolayers via Reactive Growth on Dilute W-Au Alloy Substrates," Kai Wang, Lizhi Zhang, Giang D Nguyen, Xiahan Sang, Chenze Liu, Yiling Yu, Wonhee Ko, Raymond R Unocic, Alexander A Puretzky, Christopher M Rouleau, David B Geohegan, Lei Fu, Gerd Duscher, An-Ping Li, Mina Yoon, Kai Xiao, Advanced Materials **34**, 2106674 (2022).

SYNERGISTIC ACTIVITIES:
1. 2023 - invited lecture on "CNMS Research Infrastructure for Autonomous Synthesis: A retrospective on enabling a deposition-based experimental platform and perspectives on automation," Community for Autonomous Scientific Experimentation (CASE), (5/2023).
2. 2020 - ORNL award for Outstanding Scholarly Output for "Low Energy Implantation into Transition-Metal Dichalcogenide Monolayers to form Janus Structures," ACS Nano **14**, 3896 (2020).
3. 2020 - CNMS Award for Outstanding S&T Accomplishment for "Pioneering research on understanding 2D MXene-based photocatalysts for solar energy conversion"
4. 2017 - CNMS Distinguished Scientific Paper Award for "PdSe2: Pentagonal Two-Dimensional Layers with High Air Stability for Electronics," J. Am. Chem. Soc. **139**, 14090 (2017).
5. 2014 - CNMS Distinguished Scientific Paper Award for "The isotopic effects of deuteration on optoelectronic properties of conducting polymers," Nat. Commun. **5**, 3180 (2014).

Collaborators and Co-editors:
Joonhyuk Lee (Pusan National University), Sam Yeon Cho (Jeonbuk National University), Inhwan Kim (Pusan National University), Kungwan Kang (Pusan National University), Sangkyun Ryu (Pusan National University), Yunseok Heo (Pusan National University), Jong Keum (Oak Ridge National Laboratory), Daniel Pajerowski (Oak Ridge National Laboratory), Younghak Kim (POSTECH), Sang Don Bu (Jeonbuk National University), Jaekwang Lee (Pusan National University), Hyoungjeen Jeen (Pusan National University), Elham Foadian (Univesity of Tennessee at Knoxville), Jonghee Yang (Univesity of Tennessee at Knoxville), Yipeng Tang (Univesity of Tennessee at Knoxville), Syed Joy (University of Kentucky), Kenneth R. Graham (University of Kentucky), Benjamin J. Lawrie (Oak Ridge National Laboratory), Bin Hu (University of Tennessee at Knoxville), Mahshid Ahmadi (University of Tennessee at Knoxville), Hanyu Wang (Oak Ridge National Laboratory), Ethen C. Self (Oak Ridge National Laboratory), Sadhvikas Addamane (Sandia National Laboratory), Ryan R. Wixom (Sandia National Laboratory), Katie L. Browning (Oak Ridge National Laboratory), Gabriel Veith (Oak Ridge National Laboratory), Liyuan Liang (University of Tennessee at Knoxville), James F. Browning (Oak Ridge National Laboratory), Gene Yang (University of South Carolina), Mohammad El Loubani (University of South Carolina), Habib Rostaghi Chalaki (University of South Carolina), Jiwon Kim (University of South Carolina), Dongkyu Lee (University of South Carolina), Yu-Chuan Lin (The Pennsylvania State University), Alexander A. Puretzky (Oak Ridge National Laboratory), Liangbo Liang (Oak Ridge National Laboratory), Ondrej Dyck (Oak Ridge National Laboratory), Tom Berlijn (Oak Ridge National Laboratory), Gyula Eres (Oak Ridge National Laboratory), Wenrui Zhang (Oak Ridge National Laboratory), Jie Zhang (Oak Ridge National Laboratory), Shaobo Cheng (Brookhaven National Laboratory), Kim Kisslinger (Brookhaven National Laboratory), Lihua Zhang (Brookhaven National Laboratory), Yimei Zhu (Brookhaven National Laboratory), Thomas Ward (Oak Ridge National Laboratory), Yiyi Gu (University of Tennessee at Knoxville), Lizhi Zhang (University of Tennessee at Knoxville), Hui Cai (Oak Ridge National Laboratory), Chenze

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Graduate and Postdoctoral Advisors and Advisees:
Ph.D. Advisor: R. M. Park, University of Florida (retired)
Postdoctoral Advisor: D. H. Lowndes, Oak Ridge National Laboratory (retired)

Total Graduate Students Advised: 0
Total Postdoctoral Scholars Advised: 0