Oleksandr Voznyy

Department of Physical and Environmental Sciences, University of Toronto Scarborough
1265 Military Trail, Toronto, Ontario, Canada M1C 1A4
phone: 647-470-0092 e-mail: o.voznyy@utoronto.ca

DEGREES

2004 **Ph.D**. Semiconductor Physics, Chernivtsi National University, Ukraine
Thesis: "*Optical properties of group III nitride alloys*". Supervisor: V. Deibuk

2001 **M.Sc**. Semiconductor Microelectronics, Chernivtsi National University, Ukraine

2000 **B.Sc**. Semiconductor Microelectronics, Chernivtsi National University, Ukraine

EMPLOYMENT

2024 – now **Associate Professor**, Clean Energy, Dept. of Physical and Environmental Sciences, University of Toronto Scarborough

2018 – 2024 **Assistant Professor**, Clean Energy, Dept. of Physical and Environmental Sciences, University of Toronto Scarborough

2011 – 2018 **Senior Research Associate**, Nanomaterials for Energy Group, ECE, University of Toronto

2008 – 2011 **Postdoctoral Fellow**, Quantum Theory Group, Institute for Microstructural Sciences, National Research Council of Canada

2005 – 2008 **Postdoctoral Fellow**, Quantum Semiconductors and Nanotechnology Group, ECE, University of Sherbrooke

AWARDS

2023 **Strem Chemicals Award for Pure or Applied Inorganic Chemistry**

2023 **UTSC Pre-Tenure Research Award**

2023 **UTSC Dean's Merit Award**

2021 **UTSC Dean's Merit Award**

PROFESSIONAL AFFILIATIONS AND ACTIVITIES

2021 – now **Associate editor**, Wiley *Applied AI Letters*

2022 – 2023 **Academic associate director of research**, Climate Positive Energy Initiative, UofT

2024 **Conference section co-organizer**, NanoGe "*AI for nanomaterials*", Barcelona

2022 **Conference section co-organizer**, Canadian Chemistry Conference, Calgary
"*Theory guided discovery of energy materials*"

2020 **Conference section co-organizer**, NanoGe, online
"*Perovskite quantum dots: syntheses, properties and applications*"

TEACHING

2023-2024 *Undergraduate:* **CHM B23 Chemical thermodynamics and kinetics**
3 hours/wk for 12 weeks. Enrollment 60 (DPES).

2019-2023 *Undergraduate:* **CHM B21 Atomic structure and spectroscopy**
3 hours/wk for 12 weeks. Enrollment 15-27 (DPES).

2020-2023 *Undergraduate:* **CHM A11 Introductory chemistry II**
6 hours/wk for 6 weeks. Enrollment 600-1000 (DPES).

2019-2024 *Graduate:* **CHM 1453 Density functional theory**
2 hours/wk for 12 weeks. Enrollment 7-15 (Chemistry).

2022 *Undergraduate:* **CHM D92 Advanced chemistry laboratory**
12 hours/wk for 4 weeks. Enrollment 8 (DPES).

RESEARCH ENDEAVOURS

Machine learning for materials discovery
- density of states and eigenvectors predictions using graph convolution neural networks
- machine-learning-based force fields for crystalline materials
- defects and defect tolerance

Electrocatalysis
- Nitrogen and carbon electroreduction
- CO_2 capture

Batteries
- Phase stability of Li-ion cathodes
- Solid-state electrolytes with high ionic conductivity
- Supercapacitors

New semiconductor materials
- Inorganic perovskites with improved phase stability
- New non-toxic solution-processed semiconductors
- Organic and inorganic materials for LEDs and photovoltaics

RESEARCH FUNDING

up-to-date list is provided on the PTR form

RESEARCH SUPERVISION

up-to-date list is provided on the PTR form

CONFERENCE PRESENTATIONS BY TRAINEES

up-to-date list is provided on the PTR form

INVITED TALKS

up-to-date list is provided on the PTR form

PUBLICATIONS

h-index 102, 47,500 citations (Google Scholar, April 2025)

up-to-date list is provided on the PTR form