
Johan Nordstrand

KTH Royal Institute of
Technology, Sweden
Doctoral student in Physics
E: johanno3@kth.se
T: +46733584330

ABOUT

My research focuses on modeling across scales of sustainable materials, from atomic to device levels. Main applications include desalination and sodium-ion batteries

**AWARDS AND MERITS**

UGL – Leadership course, SWEDEN (2022)
Co-supervision (Student Léa Zuili and Ph.D. student Hooman Hadidi), SWEDEN (2022)
GYSS, Global youth science seminar, representative of Sweden and KTH, SINGAPORE (2021)
Independent research grant, *J. Gust. Richert foundation*, 400,000 SEK, (2020)
SIYSS, Stockholm international youth science seminar, representative of Sweden, SWEDEN (2019)
Interview in the newspaper Ny Teknik (Swedish), SWEDEN (2019):
<https://www.nyteknik.se/ingenjorskarriar/svensken-ar-en-av-varldens-framtida-forskarstjarnor-6981396>
IPhO, international physics olympiad, KAZAKHSTAN (2014)
Swedish programming olympiad, SWEDEN (2014)

EDUCATION

Doctoral student in physics, KTH, (2019, November-2022, December)
Master program in nanotechnology, KTH, (2018-2019)
Lab internship, KAIST, SOUTH KOREA, (2017, July)
Exchange semester, KAIST, SOUTH KOREA, (2017, January-June)
Project work in nanomaterials, ZHEJIANG UNIVERSITY, CHINA, (2016, July)
Bachelor program in engineering physics, KTH, (2014-2017)

WORK EXPERIENCE

Research engineer in automatic control, KTH, SWEDEN, (2019, August-September)
Research assistant in CDI, KTH, SWEDEN, (2017-2018, part-time and 2018, July-August.)
University teacher, KTH, SWEDEN, (2016-2019, part-time)
Data analyst, SWEDISH RESEARCH COUNCIL, SWEDEN (2015, July)
Private tutor, STUDYBUDDY, SWEDEN, (2013-2016, part-time)

PUBLICATIONS

Scholar: <https://scholar.google.com/citations?user=V3q0bloAAAAJ&hl=sv>

Summary: 21 peer-reviewed publications, including **19 first-authored journal publications** in international peer-reviewed journals. Many have me as corresponding author.

Selection of Publications: (1) complete multiscale (2) DFT part, and (3) FEM part.

- (1) **Nordstrand, J.**; Toledo-Carrillo, E.; Vafakhah, S.; Guo, L.; Yang, H. Y.; Kloo, L.; Dutta, J. Ladder Mechanisms of Ion Transport in Prussian Blue Analogues. *ACS Appl. Mater. Interfaces* **2022**, *14* (1), 1102–1113. <https://doi.org/10.1021/acsmi.1c20910>. [Impact Factor 9.229]
 - (2) **Nordstrand, J.**; Toledo-Carrillo, E.; Kloo, L.; Dutta, J. Sodium to Cesium Ions: A General Ladder Mechanism of Ion Diffusion in Prussian Blue Analogs. *Phys. Chem. Chem. Phys.* **2022**, *24* (20), 12374–12382. <https://doi.org/10.1039/d2cp01156e>. [Impact Factor 4.449]
 - (3) **Nordstrand, J.**; Zuili, L.; Toledo-Carrillo, E. A.; Dutta, J. Predicting Capacitive Deionization Processes Using an Electrolytic-Capacitor (ELC) Model: 2D Dynamics, Leakages, and Multi-Ion Solutions. *Desalination* **2022**, *525* <https://doi.org/10.1016/j.desal.2021.115493>. [Impact Factor 9.501]
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