ANDY SODE ANKER, PhD

Principal Investigator, Research Fellow

Department of Energy, Technical University of Denmark

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I have recently been awarded a 4 000 000 DKK (~ £500 000) grant to pursue an academic career in the interface of materials chemistry, machine learning and robotics. I will as principal investigator build a self-driving laboratory for controlled synthesis of inorganic nanomaterials.

CURRENT POSITIONS

- Visiting Postdoctoral Fellow, Department of Chemistry, University of Oxford, England Jan 2024 –
- Postdoctoral Fellow, Department of Energy, Danish Technical University, Denmark Dec 2023 –

PREVIOUS POSITIONS

- Postdoc, Department of Chemistry, University of Copenhagen, Denmark 2023
- PhD, Department of Chemistry, University of Copenhagen, Denmark 2018 – 2023
- Visiting Researcher, Rutherford Appleton Laboratory, England 2021 – 2022

EDUCATION

University of Copenhagen, Denmark, supervision: Kirsten M. Ø. Jensen

- PhD in Chemistry 2018 – 2023
  - Dissertation: "Towards Automated Structure Analysis of Nanoparticles"
- MSc in Nanoscience 2018 – 2021
- BSc in Nanoscience 2015 – 2018

PUBLICATION METRICS (ORCID: 0000-0002-7403-6642) (Google Scholar: bit.ly/AndyGoogleScholar)

- Authored 20+ peer-reviewed papers in chemistry and machine learning journals/conferences
- 1st author of 9 peer-reviewed papers
- Corresponding author of 2 peer-reviewed papers

SELECTED PUBLICATIONS

- *Machine learning for analysis of experimental spectroscopy and scattering data in materials chemistry*, **A. S. Anker**, et al., Chemical Science 2023
- *Using generative adversarial networks to match experimental and simulated inelastic neutron scattering data*, **A. S. Anker**, et al., Digital Discovery **(Front cover)** 2023
- *DeepStruc: Towards structure solution from pair distribution function data using deep generative models*, **A. S. Anker** & E. T. S. Kjær, et al., Digital Discovery **(Front cover)**+AI4MAT NeurIPS 2022
- *Extracting Structural Motifs from Pair Distribution Function Data of Nanostructures using Explainable Machine Learning*, **A. S. Anker**, et al., npj Computational Materials + AI4MAT NeurIPS **(MAX IV annual report highlight)** 2022
- *Structural Changes during the Growth of Atomically Precise Metal Oxido Nanoclusters from Combined Pair Distribution Function and Small-Angle X-ray Scattering Analysis*, **A. S. Anker**, et al., Angewandte Chemie **(Back cover)** 2021

RECENT FUNDING

- 4 000 000 DKK Postdoctoral Fellowship from Novo Nordisk Foundation 2023

RECENT AWARDS AND HONORS

- Forbes 30 Under 30 Europe in the Science and Healthcare category 2024
- Danscatt PhD award (Danish scattering community) 2024

PRESENTATIONS

1 invited keynote talk

- "*Generative machine learning for scattering and spectroscopy data analysis*", Machine Learning Conference for X-Ray and Neutron-Based Experiments, *Garching, Germany* *2024*

5 invited talks

- "*Machine learning for analysis of experimental scattering data in materials chemistry*", Chemical Compound Space Conference, *Heidelberg, Germany* *2024*
- "*Machine learning for analysis of experimental scattering data in materials chemistry*", Conference: Machine Learning Modalities for Materials Science, *Ljubljana, Slovenia* *2024*
- "*AI in Science: Transforming Communication, Data Analysis, and Laboratory Practices*", *Seminar: DTU NanoLab, Copenhagen, Denmark* *2024*
- "*Towards Automated Structure Analysis of Nanoparticles*", Seminar: Materials Innovation Factory, Liverpool, England 2023
- "Using Generative Adversarial Networks to match experimental and simulated inelastic neutron scattering data", Seminar: ESS DMSC, Copenhagen, Denmark 2022

1 invited panel discussion

- Conference: Machine Learning Modalities for Materials Science, *Ljubljana, Slovenia* *2024*

10 contributed talks to summer schools, seminars, national- and international conferences

22 contributed posters for summer schools, national- and international conferences

BEAMTIMES 20+ scattering and spectroscopy experiments at international radiation facilities

REVIEWED 20 papers in leading chemistry and machine learning journals/conferences

TEACHING AND OUTREACH

- Two papers in Danish popular science journals - Aktuel Naturvidenskab & Ingeniøren
- Twitter takeover (@RealSci_Nano) and outreach video (https://youtu.be/PywCje9_YF4)
- Co-supervised 2 MSc and 4 BSc students at Department of Chemistry, University of Copenhagen
- Teaching assistant for 3 chemistry courses at Department of Chemistry, University of Copenhagen
- Student assistant at Nano-Science Center & Skoletjenesten, University of Copenhagen 2016 – 2018
- Teaching qualification course, Department of Science Education, University of Copenhagen, 3ECTS
- Guest lecture "Applied Mathematics for Chemists" 2023

REFERENCES

Volker Deringer, Ph.D.
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