Dynamic Modeling of Thermo-Mechanical Energy Storage Technologies

While significant advances have been made in electrochemical storage technologies, we are still far from having batteries as optimal solutions for large-scale long-term electricity storage systems. This is where thermo-mechanical energy storage solutions such as Carnot Batteries, Compressed Air Energy Storage, Liquid Air Energy Storage, etc. become important and promising. Further development of these technologies regarding processes, materials, and integration into energy systems is critically required to enhance their competitive edges and accelerate their mass deployment worldwide.

Education

2013-2016 PhD of Mechanical Engineering, Federal Univ. of Minas Gerais, Brazil

2008-2010 MSc. of Mechanical Engineering, Shahrood Univ. of Technology, Iran

2004-2008 BSc. of Power Plant Engineering, Power & Water Univ. of Techn., Iran

Most Recent Employment

2024- Now   Full Professor, Technical University of Denmark.

2022- 2024   Senior Researcher, Technical University of Denmark.

2019- 2022   Associate Professor, Aalborg University, Denmark.

2018- 2019   Assistant Professor, Aalborg University, Denmark.

2017- 2017   Postdoc, Eindhoven University of Technology, Netherlands.

2016- 2017   Postdoc, Aarhus University, Denmark.

Ahmad Arabkoohsar (PhD)

Full Professor
Department of Civil and Mech. Engineering, Technical University of Denmark, Denmark
ORCID: 0000-0002-8753-5432

Publication and Records ([Google Scholar Link)](#)

2 books released by Academic Press (Elsevier); and 8 book chapters in Springer and Elsevier edited books

+260 peer-reviewed publications in journals and conferences

Total number of citations: <u>7900</u>, H-index: <u>52</u>, i10-index: <u>152</u>.

Research Focus and Interest

Energy Storage Technologies; Thermal Energy Systems; Renewable Technologies; District Heating and Cooling

Highlighted Academic Awards

- Highly Ranked Wold's Scholar #145 (Mechanical Engineering); #18 (Thermodynamics); #252 (Energy) – Ranked by: ScolarGPS (2024)
- Ranked as No. 53 (& 3940) among "Top Engineering Researchers" in Denmark (& world) by Research.com (2023)
- Ranked as No. 5 (& 711) "Rising Stars in Research" in Denmark (& in the world) by Research.com (2023)
- Top 2% world's scientists for the year and career-long for several continuous years; Ranking by Stanford University
- Two Times Teacher of the Year (1st and 2nd Rank)

Funding and Project Leadership

About 50 mil. DKK funding through individual grants or as part of an academic-industrial consortium for over 25 projects. Some of the most recent ones of these are:

- **2** Research and Innovation Action Projects from the Horizon Europe program, total grants of 7.5 mil. €
- **5** MSCA grants for training international postdoctoral and doctoral candidates with a total budget of over 6 mil. €
- **3** training and educational projects from the EIT HEI Initiative program of the EU Commission, total grants of over 4 mil. €
- **10s** of more projects funded by EU LIFE program, Villum Fonden, IFD, and EUDP in Denmark, Humboldt Foundation of Germany, etc. for a total budget exceeding 20 mil. €

Supervision Experience

- Main supervisor of 8 Postdocs, 2 PhDs, 1 RA, and 5 guest PhD/MSc. at DTU Construct
- Main and Co-supervisor of supervisor more Postdocs, PhDs, RA, and guest PhDs/Researchers in the past

Academic Services

- Editorial Board Member of Elsevier journal Renewable Energy (IF: 9); the Journal of the Brazilian Society of Mech. Sciences and Engineering (IF: 3.05), Frontiers in Energy Research (IF: 3.5), Journal of Thermal Engineering (IF: 0.3), and several more
- Board committee member at several international conferences
- Evaluator of several research support councils around the world, including Netherlands, Latvia, Poland, India, Chile, Brazil, etc.
- Several keynote and plenary speeches at international conferences, and seminars with hundreds of attendees each