

Special
Collection

The NordBatt Conferences: The Journey so Far and the Future Ahead

Kristina Edström,^[a] Fride Vullum-Bruer,^[b, c] Ulla Lassi,^[d] Ivano E. Castelli,^[e] and Patrik Johansson^{*[f, g]}

All great things have humble beginnings. In 2013 when NordBatt started, we had no lithium-ion battery manufacturing in the Nordic countries and we had rather few EVs on the roads, although things were clearly starting to move – Tesla Model S in fact topped the monthly new car sales of Norway in September that very year. Yet, even if the field was advancing and lively, relatively few Nordic research groups were doing any kind of battery R&D. Now, in 2023, almost everything is different; batteries and “electrify everything” are seen, not only by us, as the next industrial revolution – it is a topic gathering considerably many more actors in academia as well as in the whole ecosystem of batteries.

But not all is new. The feeling we already had back then in 2013 – the very special Nordic collaboration climate and community – remains and it has also been reinforced by the NordBatt conference series. When the community gathered in Uppsala in 2013, we were a relatively small community – most people already knew each other and met anyhow in different

settings – and NordBatt was clearly dominated by academics. Today we are more diverse, but at large the legacy and the core remain.

The idea of NordBatt came from Kristina Edström, who brought us all in to Ångström Advanced Battery Centre and set the standard for further meetings: concise 2–3 day meetings (every 2nd year), focus on allowing many (younger) researchers to present (including poster presentations), and be inclusive in terms of battery technologies and topics. In addition, the conference would have some prominent international non-Nordic battery scientists as invited keynote/plenary speakers. At NordBatt 2013, Dominique Guyomard, Bor Yann Liaw and Robert Armstrong were the very first strong trio out, and they have since been followed by, e.g., Saiful Islam, Petr Novak, Noshin Omar, Bernd Friederich, Martin Winter, Jerry Barker, and Celine Merlet. The success commonly felt at NordBatt, alongside many dedicated initiatives starting both at national and European levels (not really any large Nordic effort!), gave a push to continue the series. We also agreed early on to embrace the Baltic countries and to emphasize the social side: excursions and dinners.

Ever since, during its five meetings (Table 1), NordBatt has grown in size and attention, and is now an established respected venue. It is also almost growing out of its costume as a small-medium sized meeting where informal interactions are emphasized is not totally compatible with the growth. On the positive side, we find much more diversity in topics and speakers – with the most notable change being the many battery producers and start-ups willing to present and share their experiences, strategies, and future plans.

This Special Collection gathers a few directions of research present in the Nordic battery community at present, such as: applied studies of NMC811 and LNMO lithium-ion battery cathodes, both by experiments and modelling; materials for sodium-ion batteries; several less common battery technologies: aluminum metal batteries, vanadium redox-flow batteries, and lithium-ion capacitors; a couple of popular electrolyte concepts: solid-state and local highly concentrated electrolytes; and also moving beyond the cell to state-of-health and circular economy models.

The Special Collection is also a half-stop celebrating the legacy of NordBatt's first 10 years and pointing to the future 10 years

[a] Prof. K. Edström
Department of Chemistry, Ångström Laboratory
Uppsala University
SE-751 21 Uppsala (Sweden)

[b] Dr. F. Vullum-Bruer
Department of Materials Science and Engineering
Norwegian University of Science and Technology
NO-7491 Trondheim (Norway)

[c] Dr. F. Vullum-Bruer
SINTEF Energy
NO-7491 Trondheim (Norway)

[d] Prof. U. Lassi
Research Unit of Sustainable Chemistry
University of Oulu
FI-90014 Oulu (Finland)

[e] Dr. I. E. Castelli
Department of Energy Conversion and Storage
Technical University of Denmark
DK-2800 Kgs. Lyngby (Denmark)

[f] Prof. P. Johansson
Department of Physics
Chalmers University of Technology
SE-412 96 Gothenburg (Sweden)
E-mail: patrik.johansson@chalmers.se

[g] Prof. P. Johansson
ALISTORE-ERI
CNRS FR 310, Hub de l'Energie
F-80039 Amiens (France)

This Editorial is part of a Special Collection dedicated to the NordBatt 2022 conference.

Table 1. Some past NordBatt conference data.

#	Year	Venue	Chair (s)	Number of attendees
1	2013	Uppsala University, Uppsala, Sweden	Kristina Edström	126
2	2015	Norwegian University of Science and Technology, Trondheim, Norway	Fride Vullum-Brauer	90
3	2017	University of Oulu, Kokkola, Finland	Ulla Lassi	127
4	2019	Technical University of Denmark, Lyngby, Denmark	Jonathan Højberg and Paul Norby	168
5	2022	Chalmers University of Technology, Gothenburg, Sweden	Patrik Johansson	230

or more – next in line is NordBatt at UiO, Norway, in September 2024. We foresee this meeting to be even larger and longer – not the least as Norway is the global role model for electrification and all Nordic countries are at the forefront of the green energy transition.

We all look forward to meeting you at future NordBatt conferences and please enjoy the science presented in the NordBatt Special Collection!