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

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

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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.

**B**ut 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.

**T**he 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 2<sup>nd</sup> 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.

**E**ver 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.

**T**his 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.

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 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

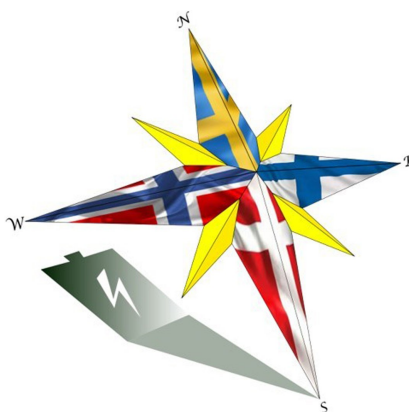
**T**he Special Collection is also a half-stop celebrating the legacy of NordBatt's first 10 years and pointing to the future 10 years or more – next in line is NordBatt at UiO, Norway, in September 2024. We foresee this meeting to be even larger and longer – not the least as Norway is the global role model for electrification and all Nordic countries are at the forefront of the green energy transition.

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

## EDITORIAL

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**True North:** This Guest Editorial introduces the NordBatt Special Collection, dedicated to the conference series of the same name. The Guest Editors reflect on the beginnings of the conference series and its evolution over the past 10 years.



*Prof. K. Edström, Dr. F. Vullum-Bruer,  
Prof. U. Lassi, Dr. I. E. Castelli, Prof. P.  
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Special  
Collection