

Robert Dominko (SI)

#### A short CV

Prof. dr. Robert Dominko is a research professor at the National Institute of Chemistry in Slovenia, and he is a university professor of material science at the University of Ljubljana. His research interests are in the field of materials science and electrochemical systems for energy storage and conversion, with main activities in the field of modern battery systems. He has published more than 200 peer-reviewed papers, he has 15 international patents and patent applications.

He is strongly connected with the Battery 2030+ initiative, where he is one of the main authors of the battery research roadmap up to 2030. He is a member of Batteries Europe consortia, where he is one of the co-leaders of the task force preparing a strategy on the education level. He is a deputy director of the European virtual research laboratory for batteries Alistore-ERI and he is a member of the Slovenian Academy of Engineering.

#### Abstract:

Batteries are one of the key technologies in the electrification of the mobile sector. Further, we can expect increased use of batteries for the storage of renewable sources of energy. Lithium ion batteries are currently the most advanced technology. Although they are considered as zero CO<sub>2</sub> emission technology, their production is energetically too intense and cells are based on some critical raw materials. With continuous development, the quantity of some of the critical elements can be reduced or even eliminated while the energy for production is continuously decreased.

With a focus on sustainability, new battery chemistries are in the development, or early commercialization phases. Additional chemistry with similar properties as Li-ion battery technology will have an impact on the depletion of resources and price fluctuation. This would be only valid if cells are comparable in terms of performance. Some new trends in sodium, magnesium, and aluminum batteries will be presented.