

Next generation of automotive batteries – requirements and challenges.

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With the launch of the BMW i3 and i8 BMW has pioneered the introduction of battery electric vehicles. Electric vehicles will be the ‘new normal’ for BMWs future strategy. Clearly, the battery technology is the key to realize the ambitious product portfolio and sales numbers. Thus, BMW has continuously improved its battery competence over the last decade. There are still essential improvements necessary for the present Li-ion technology to reach the midterm performance and cost targets. On the other hand the intensively investigated all-solid-state battery still has to prove that it can outperform the most advanced Li-ion technology.

In this overview presentation the BMW strategy on battery development will be explained. Based on the requirements deduced from the automotive application present development trends and status on both technologies Li-ion and all-solid-state batteries will be discussed. For most of the material developments considerable improvements are needed before a possible industrialization of the new generations of batteries for automotive application can be envisaged. This presentation will outline the potential and limits of present material concepts from a car manufacturer point of view. In particular it will address open issues to be solved in the future development of electric energy storage technologies for automotive applications. Some main challenges will be addressed by examples from present BMW research projects.