

Lightweight structural energy power storage materials

Swerea SICOMP AB has been granted 13.4 MSEK by the Swedish Foundation for Strategic Research for a three year research project on structural energy power storage materials made from polymer composites. The research is to be done in collaboration with KTH and LTU.

The project aims at development of structural polymer composite materials with intrinsic electrical energy storing capability. Such materials are desired for their potential to reduce weight and provide energy needs for future electric vehicles.

To realise such materials reinforcement systems adapted for electrical conductivity in anodes, cathodes and separator layers must be developed. In addition, stiff electrolyte polymer materials to be employed as composite matrix must be generated. Here, thermoset polymer resins as well as conductive thermoplastic polymers are to be developed to allow for different composite manufacturing routes. Following the constituent development, rational processing techniques and design methods for these composites must be produced. In particular, cost-effective manufacture at high volumes, required by car manufacturers must be elaborated. The manufactured materials are to be characterised and ranked for electric and mechanical performance. The most promising candidates are taken forward to the systems level, studying issues such as hybrid laminate design, power management, packaging and cost and life analysis.

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