

Exploring new chemistries, materials and manufacturing strategies for next generation batteries in the ORANGEES project

Antonio RINALDI - ENEA

Advanced materials and manufacturing are critical research areas to overcome the challenge of the transition to a circular economy and full exploitation of renewables, where electrochemical batteries for energy storage play a particularly crucial role. Yet, it is important to develop new chemistries, materials and manufacturing for next generation batteries, making them not only more efficient but also fully sustainable. The ORANGEES project - a joint effort between ENEA, IIT, CNR, RSE, INSTM and STANDEX (industry partner) - sets off to carry out exploratory research to assess the potential for new chemical, material, and manufacturing concepts in the engineering of electrodes and electrolytes. The project activity is aimed at the synthesis/characterization/validation of innovative, eco-sustainable and low-cost materials for application in electrochemical storage systems. The activities concern the study of both hybrid (inorganic/organic) and purely organic materials (also from waste compounds as biomass). This talk provides an overview of the project, highlighting objectives and ENEA focus activities.