

AI and advanced materials at EIC

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Abstract

AI is influencing a large panel of technological fields accelerating their development. For example, by leveraging AI-driven approaches, we can accelerate the discovery and design of novel materials with superior properties for energy storage, such as high-capacity batteries and supercapacitors but also developing AI tools to optimize transport and reduce CO2 emission. Concerning advanced materials, machine learning algorithms enable the rapid screening of vast material datasets, predicting and targeting performance outcomes, and identifying candidate materials that traditional methods may overlook. These approaches not only reduce the time and cost of experimentation but also inspire unconventional combinations of materials that enhance energy density, stability, and cycle life. For reducing CO2 emissions, we can imagine the development of AI based tools allowing the optimisation of the traffic and so pushing for emission reduction. This contribution will deal with the presentation of the next challenges¹ by EIC where the AI is implemented for development of advanced materials but also for developing new AI based tools able to reduce the CO2 to reach the objectives set in stone by the Green Deal².

The European Innovation Council (EIC) is at the forefront of fostering breakthrough innovations and fostering scalable technology solutions across Europe. A key area of focus for the EIC is the utilization of artificial intelligence (AI) in the

development of advanced materials and for the reduction of CO2 emissions in transport, aligning with the European Union's broader sustainability and climate action goals. Through strategic funding and support, the EIC is empowering researchers and innovators to create cutting-edge solutions that contribute to a low-carbon economy. This initiative not only positions Europe as a leader in sustainable innovation but also drives the transition towards a more environmentally conscious industrial landscape.

¹ https://eic.ec.europa.eu/eic-funding-opportunities/eic-pathfinder/eic-pathfinder-challenges-2025_en

² https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en
