

CORNET Call for Proposals: International Collective Research
--- Organisation profile ---

Organisation:	Sakarya University
Website address:	tcetinkaya@sakarya.edu.tr
Organisation typology:	<input type="checkbox"/> SME Association <input checked="" type="checkbox"/> University <input type="checkbox"/> Research Centre <input type="checkbox"/> Other (please specify)
Sector:	<input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Process Engineering, Energy Technology and Environment <input type="checkbox"/> Business Management and Organisation <input type="checkbox"/> Construction and Production <input type="checkbox"/> Chemistry, Textile, Food, Health and Medical <input type="checkbox"/> Measurement and Information
Field of specialisation:	The project idea is to develop a quasi-solid lithium battery in battery module size.
Expertise offered:	<p>The Sakarya University Battery Research Group (LIPGUM) features state-of-the-art shared instrumentation facilities that support high-level scientific research and student training. Each Facility offers multiple research instruments and high-end tools, needed to support the diverse research activities within the Department. These facilities welcome users from the many universities, companies and federal laboratories, providing hubs for collaboration and innovation.</p> <p>LIPGUM laboratories provides extensive experience and state-of-the-art equipments for;</p> <ul style="list-style-type: none"> -Performance and Life Testing. -Failure analysis. -Measurement and Materials Characterization. -Environmental Conditioning/Accelerated Testing. <p>LIPGUM laboratories also provides advanced Battery testing facilities. Li-ion, Na-ion, Mg-ion, Li-S and Li-Air batteries degrade as a result of usage or storage conditions, life cycle stresses, and the stability of the constituents of the cell (e.g., electrode materials, electrolyte). The degradation of a battery can be observed many different ways, both through non-destructive and destructive</p>

	<p>measurements. Testing facilities include:</p> <ul style="list-style-type: none"> -Non-destructive electrical testing, -Non-destructive structural testing, -Destructive analysis and testing. <p>The battery research activities are performed in close collaboration with LIPGUM Group and can be summarized in the following main activities:</p> <ul style="list-style-type: none"> -Development of cathode materials for Li-ion batteries based on transition metal oxides (layered, spinel and phosphate based). -Modification and characterization of carbon based anodes for Li-ion batteries. -Modification of electrolytes for Li-ion, Na-ion, Mg-ion batteries and characterization of temperature dependent properties. -Development of new anode materials for Li-ion, Na-ion and Li-S batteries -Development of new cathode materials for Na-ion, Mg-ion batteries based on spinels of Fe, Co and Mn, and spinel/graphene composites. -Synthesis and characterization of electrolytes and cathode materials for Li-air batteries. -Novel manufacturing methods compatible for coin cell or pouch cells such as 3D and 2D printing methods.
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