



# BE PART

OF AN AMBITIOUS SCIENTIFIC PROGRAM ON BATTERIES

LAUNCHED BY CEA

Multi-scale simulation of batteries applied to electrode materials

- 1 Accelerate the development of **battery electrode materials**
- 2 Develop a more **predictive approach** based on **simulation** with a strong coupling between **advanced experimental characterizations** and **advanced models and simulations**
- 3 Improve **performance, durability** and **safety**

4-YEAR SCIENTIFIC PROGRAM STARTING IN 2020  
15 PHD THESES & SEVERAL POST-DOCS



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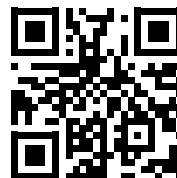
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## 4-YEAR SCIENTIFIC PROGRAM STARTING IN 2020 15 PHD THESES & SEVERAL POST-DOCS

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<b>Title</b>	<b>Center</b>
Aging of Li-ion batteries with a silicon anode studied by radiolysis	Saclay
Study of Lithium-plating phenomenon: Characterization and phenomenon simulation	Grenoble
Study of heterogeneous damage in Li-ion batteries related to cell design and development of associate ageing model at cell level	Grenoble
Modeling phase transitions in LIB active materials	Grenoble
Study of the Li intercalation mechanisms in battery electrodes by operando synchrotron X-ray (micro)diffraction	Grenoble
Study of cathode materials for lithium-ion batteries by experimental and theoretical soft and hard X-ray photo-emission spectroscopy	Grenoble
Theoretical and experimental study of the kinetics of lithiation of amorphous and cristalline silicon	Saclay
Operando characterization of the battery structure and interfaces using 3D synchrotron/neutron techniques	Grenoble
Study of the mechanical behavior in cycling of a silicon/ carbon composite particle used in Li-ion cells	Cadarache
Selection and optimisation of silicon anodes for all solid state batteries	Grenoble
In-situ visualization and quantification of microstructural evolutions in all-solid batteries	Grenoble
Atomic-scale modelling of glass/crystal electrolyte materials for solide state batteries	Saclay
Multiscale modeling of lithium transport in solid and hybrid Li-ion electrolytes and their interfaces	Grenoble
Study of transport mechanisms of lithium in hybrid electrolytes for solid-state batteries	Grenoble