WATERLOO | ENGINEERING

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Graphene-wrapped silicon nanoparticles for all-solid-state lithium-ion batteries

Silicon is a promising material for lithium-ion battery anodes given its high capacity and safety compared to lithium metal. Its main challenge is the large volume change with each cycle which leads to a rapid depletion of the electrolyte. Another field of interest is solid-state electrolytes which increase the battery's safety and stability. This project attempts to solve the challenges of silicon by wrapping the particles inside a graphene ball and combining it with a solid electrolyte to produce a stable, high performance battery.

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