

The Sustainable Power and Energy Center at UC San Diego is home to researchers from engineering, chemistry, physics and economics who collaborate to develop high-performance, low-cost materials and devices for energy generation, storage and conversion.

Defining the  
Future of the  
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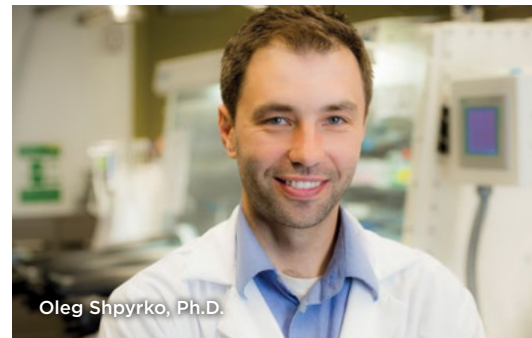
## ***A Battery of Solutions***

To help ensure a low-carbon future, batteries will need to do more than charge faster, last longer and cost less—they will need to perform at the high voltages electric cars require. Two UC San Diego researchers—nanoengineer **Shirley Meng, Ph.D.**, and physicist **Oleg Shpyrko, Ph.D.**—are collaborating to address the challenge. Their work in the new Sustainable Power and Energy Center combines Meng's expertise in battery research with Shpyrko's X-ray imaging techniques to provide insights—at the nanoscale—on what happens inside a battery while it operates in real time. Ultimately, their findings will shape how battery developers design high-voltage lithium-ion batteries to reduce greenhouse emissions and the carbon footprint of vehicle transportation.

The work at the Sustainable Power and Energy Center to better understand and protect the planet is also aligned with the sustainable operations on campus. UC San Diego's renowned microgrid serves as the real-world test bed for the researchers to explore their green and advanced energy solutions.



Shirley Meng, Ph.D.



Oleg Shpyrko, Ph.D.

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