

# Séminaire Dr. Pascale CHENEVIER

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**Mercredi 6 décembre 2023 à 10h30**

Salle 4-A014, Institut Jean Lamour, Campus Artem

## Silicon nanowires in composites: crystalline spaghetti to boost batteries



Silicon for new energies is an old story, dating back to the creation of photovoltaic panels in the 1950s. In these solar panels, the silicon has to be very pure and very crystalline to capture the light and generate electricity with the highest possible efficiency. But silicon also has other useful properties for energy storage: it forms a very interesting alloy with lithium, the star of batteries for electric cars. It is this remarkable quality that led us to invest in the synthesis of nano-silicon in composite powders, which I will present here. I will show why, in this field, it is more important to control the size than the chemical purity of silicon, and how this changes its environmental impact. Finally, I'll talk about the development of lithium-ion batteries that we've been working on in close partnership with the LITEN, and our recent results in all-solid state batteries. Finally, we'll take some time to discuss how we can tackle the very complex sustainability issues surrounding lithium-ion batteries.

Séminaire organisé par le Département Chimie et Physique des Surfaces et des Solides