

Organic Semiconductors: New Materials for a Cheaper and Greener Electronics

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Organic semiconductors is a new class of materials composed of organic molecules and polymers that have been increasingly used in electronic devices around us. Nowadays, most of the modern cellphones have displays made of organic molecules.

Photovoltaic panels made of organic semiconductors promise to be lightweight, flexible and even transparent. Tall buildings will be able to generate energy not only from the roof but also from their entire facades.

The use of organic compounds to build electronic devices will allow for new-to-the-world applications, such as cheaper RFID tags, that will replace the current bar-codes in merchandise that we buy in the supermarket, drastically reducing the time we spend to pay for our purchases.

And these new devices will be not only cheaper, using less energy to be built, but also greener, as the main building blocks of the devices will be organic compounds.

My research project focus on the use of Quantum Chemistry and Molecular Dynamics to study organic molecules and polymers for applications in Organic Electronics.

We concentrate our efforts on both the electronic and the charge-transport properties of such molecules, with applications in Organic Photovoltaics, Light Emitting Diodes and Field Effect Transistors.