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Carbon materials for heterojunctions and transparent electrodes

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Abstract: In this talk I will introduce an overview of the research topics developed in the Semiconductor Characterization and modelling group at LGEP as well as the future Photovoltaic Institute (*IPVF*) that will partner most important research labs and energy industrials for the development of advanced technology and tools dedicated to photovoltaic. I will then report on diamond based heterojunctions for photo detection applications and on our graphene research topic. Exfoliated graphene exhibits extraordinary physical properties that can be exploited for a variety of applications. However, its synthesis through CVD (*Chemical vapour Deposition*) remains challenging in terms of its optoelectronic properties. In this context, I will present the GraPhIC project (*GraPhene growth Interface and Characterization*) that targets the implementation of graphene transparent electrode for organic as well as inorganic solar cell devices. This project aims at optimizing and functionalizing CVD-graphene to reach ITO performance but also to set the technology and characterization platforms for the investigation of advanced 2D heterojunctions.

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