

From fundamental science to biomedicine, searching for multidisciplinary

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A fundamental chemist by training, from the earliest moments of my career I have worked on topics led mainly by physicists. Afterwards, I joined ICN2, a group which has a strong focus on medical technology development based in graphene and other 2D materials. Through these experiences, I have learned to develop research in a multidisciplinary environment and find answers to questions at the confluence of disciplines. I have to find the way to follow my interests while contributing with fundamental knowhow to my new group achievements. In these years I have focus on the growth and characterization of 2D materials to be integrated in thin film technologies and on the optimization of the 2D-based electronics, towards the development of multifunctional neural interfaces.

These experiences, together with my previous background in 2D materials *straintronics*, lead naturally to my most recent research interest: the development of self-powered neural interfaces, where triboelectricity represents the selected approach. In this new stage of my career I face a new project than concentrates challenges in materials engineering and technology integration. It will allow to broaden the inter-disciplinary nature of my research experience to include aspects of energy harvesting and storage, as applied to implantable medical devices at first, but which would open up a broad range of applications and future research directions.