



RIS3CAT

Project: ProGraMass (ICN2, Earthdas)

ProGraMass

ProGraMAss- Low Cost Graphene production

ProGraMass is focused on large scale production of graphene by Top-Down methodologies, basically tribology starting from graphite. One of the main drawbacks of this technology is that (few layer) graphene particle size is not homogeneous, i.e. the final product is polydisperse in terms of particle size, which might prevent the display of the desired properties.

In this project we face two main objectives. First, how to isolate graphene from the reactants used for its preparation. We aim at recovering these products from the exfoliation process and reuse them. This will give us a more economic and environmentally friendly graphene exfoliation process. Once this is accomplished, the second big technologic challenge is how to obtain/separate graphene samples with a narrower particle size distribution so that we can measure and use their properties. In the project we plan to test several options to separate different graphene qualities. Additionally, this project presents other challenges: scaling up the quantity of graphene produced per batch to get a lab scale demonstrator, we will try to solve the inherent problems of the production process.

Finally, given the existence of many diverse applications, each requiring of different graphene qualities, we will focus our efforts on the preparation of graphene products best suited for electrochemical energy storage in the form of electrodes. We aim to study and optimize the graphene production for supercapacitors, batteries and/or hybrid systems.



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