

Hybrid Nanomaterials for Energy Storage

Pedro Gomez Romero
ICN2, CSIC, BIST, CERCA, Spain
pedro.gomez@cin2.es

Energy storage is one of the key pieces to fix the upcoming but complex sustainable energy puzzle. Batteries and supercapacitors are two of the strongest technologies contributing to practical electrochemical energy storage but have complementary strengths and weaknesses concerning energy / power density or cyclability. In our group we are actively developing new hybrid materials and hybrid devices aiming to fill the gap between batteries and supercapacitors in terms of mechanisms and properties. Our recent work on nanocomposites based on nanocarbons and inorganic clusters will be used as a representative example of the materials – related work in this area and we will present also our own approaches to the development of new hybrid devices made with different nanocarbon electrodes.

- [1] D. P. Dubal, O. Ayyad, V. Ruiz, and P. Gomez-Romero. *Chemical Society Reviews*, 2015, 44, 1777.
- [2] Deepak P. Dubal,* Pedro Gomez-Romero** *Materials Today Energy* 2018, 8, 109-117. All Nanocarbon Li-Ion Capacitor with High Energy and High Power Densities