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Research work proposal for a PhD student

Research project: *A new generation of high energy hybrid capacitors - HYCAP*

We propose a PhD student stipend in the Power Sources Group (<http://powersourcesgroup.put.poznan.pl/>) for a collaborative work in the frame of the HYCAP project supported by the TEAM TECH Programme implemented by the Foundation for Polish Science.

The objective of the HYCAP project is to develop a new concept of high energy, environmentally friendly and low cost electrochemical capacitor (also called supercapacitor) based on the hybridization of electrodes undergoing different charging mechanisms. Supercapacitors are energy storage devices used for applications in electric and hybrid vehicles, tramways, starting of diesel engines, renewable energy harvesting, etc.

Within the frame of HYCAP, the student will design optimized electrode materials for metal-ion capacitors using nanocarbons (nanoporous carbons, graphenes, carbon nanotubes, ...) as conductive and resilient matrix. Advanced physico-chemical methods and electrochemical techniques will be coupled to determine the materials properties. Hybrid capacitor cells will be then realized by combining electrical double-layer and insertion electrodes.

This ambitious work programme, in collaboration with two renowned industrial partners in Poland, is recommended for a chemist interested by fundamental and applied science, and aiming at developing a future carrier connected with research and industrial developments. The fellow should possess a good background in materials science and electrochemistry. She/he should be good team player and have ability and willing to taking initiative. Good English speaking and writing is also required.

Remuneration per month: 4,500 PLN (tax free) for 12 months.

Starting date: April 1st, 2020

Candidates wishing to apply are requested to send:

- i) their Curriculum Vitae;
- ii) a recommendation letter from their current scientific supervisor;
- iii) a motivation letter;
- iv) attested copies of education certificates including grade reports
- v) and other documents such as scientific publications

to Professor F. Béguin (francois.beguin@put.poznan.pl) before **February 17th, 2020**.

More information on <http://powersourcesgroup.put.poznan.pl> or contact Professor F. Béguin, Piotrowo 3, Budynek A1, Pokoj 801a, tel. +48 61 647-5985.

