**IISER & SPEL Pune jointly develop indigenous Graphene-Supercapacitor**

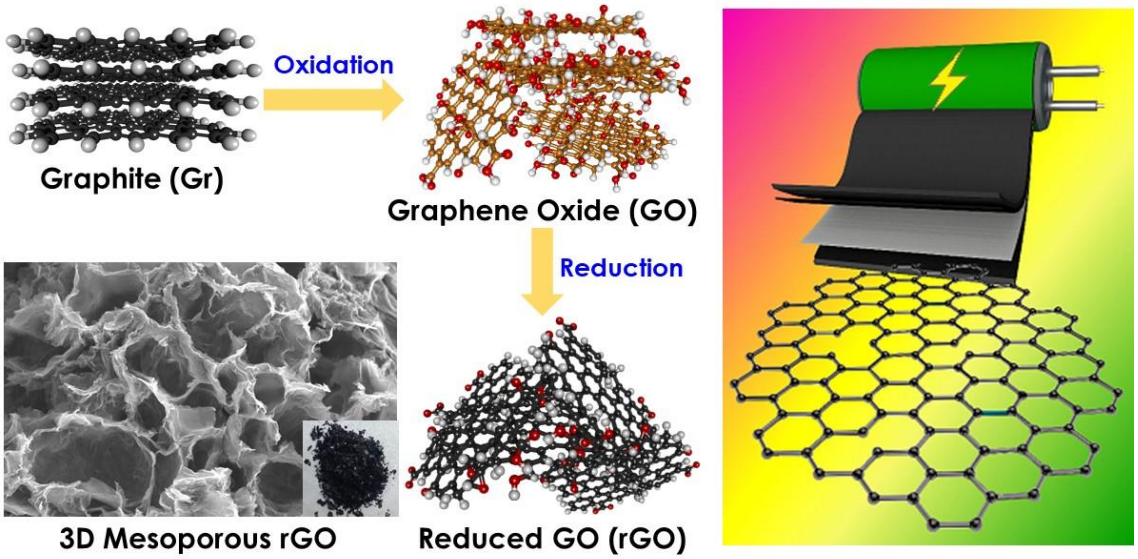
IISER Pune has developed a process technology for generating functionalized graphene at low-cost for the development of graphene-based supercapacitors for energy storage to be fabricated at SPEL Pune.

Honourable Prime Minister Shri Narendra Modi during his visit to IISER Pune on December 8, 2019 witnessed this cutting edge technology presentation, took cognisance of this effort, and stressed on need for affordable clean energy solutions.

This project of 'High-Performance Graphene-Based Supercapacitor' is supported and funded by Technology Mission Division (Energy & Water), Department of Science & Technology under Materials for Energy Storage programme.

Dr. Nirmalya Ballav from the Chemistry Department of IISER Pune and his research team have found an unconventional way of reducing graphene oxide (GO) leading to the formation of self-healed ambient stable reduced graphene oxide (rGO). They have applied for a patent for the technology (Indian Patent Application No. 201621023063).

The cost of raw chemicals for the production of 1 gm of rGO is estimated to be less than Rs. 700 – much cheaper than the commercial rGO from reputed international chemical company. The team is also working for pilot-scale production of rGO at IISER Pune campus with DST Support.




Under the mentorship of Prof. Jayant Udgaonkar, Director-IISER Pune and desirable material properties specified by industrial partner Dr. Rajendrakumar Sharma (SPEL Pune) for use in supercapacitor application, this cutting edge technology material was developed at IISER Pune by Principal Investigator Dr. Nirmalya Ballav and his team. Several prototypes as proof-of-

concept have been developed for product validation at IISER Pune and SPEL Pune.

With the production of 500 gm quality rGO, 10 F and 500 F rGO-based supercapacitors having energy density of over 20 Wh/kg would be launched by end of the year 2020, for consumer electronics and electric mobility applications, respectively.