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Novel 3D graphene-based materials prepared by chemical vapor deposition: Process development and production scaling-up

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We have developed methods of CVD processing which are suitable for the industrial production of graphene foam. We were able to tune the overall porosity, aspect ratio, and density of graphene foams by optimizing the parameters of CVD growth and choosing the proper metal support structure; this allows for better mechanical stability and electrical conductivity, thus improving the graphene foams performance. To optimize graphene foam's energy storage capabilities, we have chemically modified the surface of the graphene foam. With these advancements, graphene foam is on the fast track to be used in commercial applications, namely for use in energy storage such as fuel cells. I will discuss the advancements Graphene Laboratories has made in scaling up the production of graphene foams.

Biography

Elena Polyakova is the Chief Executive Officer of Graphene Laboratories, a company she founded in 2009. Dr. Polyakova holds Master's and Bachelor's degrees in Physics and Applied Mathematics from the Moscow Institute of Physics and Technology, and a Ph.D. in Physical Chemistry from the University of Southern California. Upon graduation, she worked as a Postdoctoral Fellow at Columbia University from 2005 until founding Graphene Laboratories. Her entrepreneurship earned her title of *Mass High Tech* Women to Watch in 2011; Dr. Polyakova continues to demonstrate leadership in nanotechnology, presenting at many conferences and seminars while running a successful company.

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