



**Showcasing a review from Dr Nikos Tagmatarchis' research group, Director of the Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation, in Athens, Greece.**

Chemically modified carbon nanostructures and 2D nanomaterials for fabrics performing under operational tension and extreme environmental conditions

Towards the realization of superior fabrics performing under extreme environmental and operational conditions, functionalized carbon nanostructures and graphene-related 2D nanomaterials steadily join the scene. In this review, hybridization methodologies of these nanomaterials as counterparts to fabric fibers are highlighted, as well as their chemical modification as carriers of enhanced qualities against critical conditions, those being antibacterial, flame retardant, UV resistant, water repellent and high air and water vapor permeability activity. The chemistry highlighted offers the toolbox for the fabrication of novel hybrid fabrics, extremely useful not only to material scientists, but also to industry.

**As featured in:**



See Ioanna K. Sideri and Nikos Tagmatarchis, *Mater. Horiz.*, 2021, **8**, 3187.