

Abstract Submitted
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Mechanically Robust Polymer-Graphene Aerogels HEONJOO HA,
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harashtra, India, CHRISTOPHER ELLISON, University of Texas at Austin - McK-
etta Department of Chemical Engineering — Graphene has been intensely studied
for the past several years due to its many attractive properties. Graphene ox-
ide (GO) aerogels are particularly interesting due to their light weight and excel-
lent performance in various applications, such as environmental remediation, super-
hydrophobic and super-oleophilic materials, energy storage, etc. However, GO aero-
gels are generally weak and delicate which complicates their handling and poten-
tially limits their application outside the research lab. The focus of this work is to
synthesize mechanically stable aerogels that are robust and easy to handle without
substantially sacrificing their low density. To overcome this challenge, we found that
by intermixing a small amount of readily available and thermally crosslinkable poly-
mer can enhance the mechanical properties without disrupting other characteristic
intrinsic properties of the aerogel itself. This method is a simple straight-forward
procedure that does not include any tedious chemical reactions or harsh chemicals.
Furthermore, we will demonstrate the performance of these materials as a super-
absorbent and pressure sensor.

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