

### **Seaweed Derivative Gives Boost to Lithium-Sulfur Batteries**

[Lithium-sulfur batteries have great potential as a low-cost, high-energy, energy source](#) for both vehicle and grid applications. Scientists from the U.S. Department of Energy's Lawrence Berkeley National Laboratory have discovered that carrageenan—a substance extracted from red seaweeds—acts as a stabilizer in lithium-sulfur batteries. Better stability allows for more cycling and an extended lifetime.

### **New Approach Improves Ability to Predict Metals' Reactions with Water**

[Researchers at Oregon State University and the University of California](#) have developed a new computational method that combines two techniques to make predictions faster, less costly and more effective. The findings, published in *Nature Communications*, could have a wide range of applications, including in the design of bridges and aircraft engines, both of which are susceptible to corrosion.

### **Solar Paint Offers Endless Energy from Water Vapor**

[Researchers from RMIT University in Melbourne, Australia have developed a solar paint](#) that can absorb water vapor and split it to generate hydrogen - the cleanest source of energy. The new material, synthetic molybdenum-sulphide, acts as a semi-conductor and catalyses the splitting of water atoms into hydrogen and oxygen from moist air and solar energy.

### **New Chemical Method Could Revolutionize Graphene**

[University of Illinois at Chicago scientists have discovered a new chemical method](#) that enables graphene to be incorporated into a wide range of applications while maintaining its ultra-fast electronics. Researchers used a chemical process to attach nanomaterials on graphene without changing the properties and the arrangement of the carbon atoms in graphene.

### **Scientists Make Biodegradable Microbeads from Cellulose**

[Scientists and engineers from the University of Bath](#) have developed biodegradable cellulose microbeads from a sustainable source that could potentially replace harmful plastic ones that contribute to ocean pollution. The beads are made from cellulose, which is the material that forms the tough fibres found in wood and plants.

### **Decomposing Leaves are a Surprising Source of Greenhouse Gases**

[Michigan State University scientists have pinpointed a new source of nitrous oxide](#), a greenhouse gas that's more potent than carbon dioxide. This new discovery is featured in the current issue of *Nature Geoscience*, could help refine nitrous oxide emission predictions as well as guide future agriculture and soil management practices.

### **New Ceramic Nanofiber 'Sponges' Could be Used for Water Purification**

[Researchers at Tsinghua University in China have found a way](#) to make ultralight sponge-like materials from nanoscale ceramic fibers. The highly porous, compressible and heat-resistant sponges could be used for water purification devices to flexible insulating materials. Titanium dioxide is a well-known photocatalyst used to break down organic molecules, which kills bacteria in water.