

## Materials science

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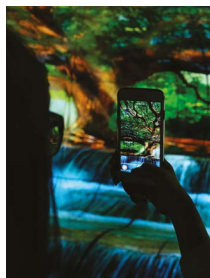
**A**s scientists race to find low-carbon technologies to reduce greenhouse-gas emissions, energy is a hot research topic in materials science. It is obvious, then, that the search for better batteries is a focus for some emerging stars in materials science (see page S26). We also explore the field of energy harvesting, to find that everything old is new again: the cellulose fibres in wood, cotton and paper, turn out to have a cellular structure that can be treated to harvest energy from low-heat sources such as the body, opening the possibility that 'old' materials might power the smartphones and other small devices of the future (see page S38).

It's one thing to invent, discover or repurpose a material in a lab and publish it in a scientific journal, but transforming it into a commercially successful product, or the basis of an entirely new industry, is a huge accomplishment. The journey can take decades, be fraught with pitfalls and dependent on patient, deep-pocketed commercial partners. Yet the rewards can be immense (see page S20). Although we look to materials science innovations in the fight to solve climate change, they are, at best, one shaft of light in what must be a rainbow spectrum of solutions.

As government-backed initiatives in the United States and China compete to resurface 'lost' research, the next big discoveries could be made by machine-learning algorithms and data mining. China has emerged as a formidable force, although a spread of countries is still evident among the top-performing institutions (see page S42). No fewer than 43 of the 50 institutions that clocked the biggest rises in materials science research output in the Nature Index journals from 2015 to 2018 are from China (see page S34). In 2018, the annual growth in China's materials science Share in the Nature Index was 15.8%; the US's Share in the same year fell by 10.3%.

Readers will note that this supplement introduces this change in our metrics terminology: our signature metric, Fractional Count (FC) is now called Share. It is a measure of an institution's contribution to articles in the 82 journals tracked by the index, based on the proportion of its affiliated authors on an article's author list, with each author deemed to have contributed equally. The new term for our former Article Count (AC), which gives an institution, or country/region a score of 1 for every article on which one or more of its affiliated authors appear, is simply Count. You can find out more at [go.nature.com/indexcount](http://go.nature.com/indexcount)

**Catherine Armitage**  
*Chief editor*



**On the cover**  
A smartphone snaps an image of curved OLED TVs at an electronics trade fair.  
Cover image: Sean Gallup/Getty Images

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