nature

index

Nanoscience and nanotechnology

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In March, researchers at the University of Cambridge, UK, described building high-rise 'nano-housing' for photosynthetic bacteria, designed to help the bacteria grow faster by providing a lot of surface area and light. The mini skyscrapers of metal oxide nanoparticles act as electrodes, with the potential to extract enough energy from photosynthesis also to power small electronics.

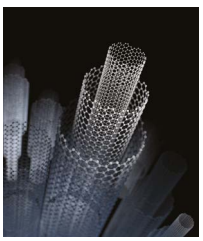
The possibility of scaling up such a device to achieve better solar-conversion efficiencies and more effective biofuel generation than existing methods illustrates why nanoscience and nanotechnology is such an attractive field for researchers and investments. With the right building blocks, intended to integrate with computing systems to support new architectures (see page S2) or gene-editing machinery to boost crop performance (see page S16), for example, nanoscience has the capacity to revolutionize industries.

In this supplement, we explore the people and institutions that are leading the way in high-quality nanoscience and nanotechnology research. We use the metric Share* to measure performance based on output in the 82 selected natural-science journals tracked by the Nature Index. Nano-articles in the index were identified through keyword and fields-of-research searches in the Dimensions database by Digital Science, as well as tracking output in *ACS Nano, Nano Letters* and *Nature Nanotechnology*.

Public buy-in can be a big hurdle for nanoscience researchers, especially those working in medicine or health care. As Jess Wade discusses on page S14, 'nano-phobia' can undermine efforts to advance vaccine technology and other innovations in drug delivery. Clear messaging and a concerted effort from the scientific community and governments to address misconceptions are crucial if we are to address the world's biggest challenges using some of its smallest components.

Bec Crew
Senior editor, Nature Index

**Nature Index's signature metric Share, used in this supplement, is a fractional count for an article allocated to an institution, city or country/region, that accounts for the proportion of authors on the article whose institutional affiliation is with that institution or location. Adjusted Share accounts for the small annual variation in the total number of articles in the Nature Index journals. We point out that the Nature Index provides just one indicator of research performance, and many other factors must be taken into account when assessing the quality of research or institutions.*



On the cover: Carbon nanotubes
Credit: Olemedia/Getty Images

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