

# Top 10 advances in materials science selected by *Materials Today*

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What are the defining discoveries and great developments that are shaping the way we use materials and technologies today? Elsevier's *Materials Today* magazine has compiled a list of the top ten most significant advances in materials science over the last 50 years.

The top ten includes advances that have altered all our daily lives. Some have completely changed the research arena, and others have opened up new possibilities and capabilities. They are:

1. The International Technology Roadmap for Semiconductors
2. Scanning probe microscopes
3. Giant magnetoresistive effect
4. Semiconductor lasers and light-emitting diodes
5. National Nanotechnology Initiative
6. Carbon fiber reinforced plastics
7. Materials for Li ion batteries
8. Carbon nanotubes
9. Soft lithography
10. Metamaterials

Surprisingly, top of the list is not a research discovery, but a way of organizing research priorities and planning R&D. The International Technology Roadmap for Semiconductors (ITRS) drives the incredible progress of the microelectronics industry by setting out goals for innovation and technology needs. A mixture of science, technology, and economics, it is hard to see how the ITRS could do better in driving

forward advances in this area.

“I believe it is an appropriate first choice in our list,” says Jonathan Wood, editor of Materials Today. “Not only is electronics critical to our modern world, progress in semiconductor processing and advances in materials science have gone hand-in-hand for the last 50 years.”

Materials science studies what makes up our world – the metals, semiconductors, plastics we use to make all our devices, products, and technologies. It can be how to make smaller, faster transistors to give more powerful computers; understanding the electrical properties of polymers to produce cheap displays for cell phones; or analyzing how tissues in the body bond to medical implants.

“I want this list to be a celebration of the achievements of materials science,” says Wood. “Too often, this diverse, dynamic field gets squeezed out by the big boys of chemistry and physics. Yet it is crucial to so much of today’s world.”

External link: <http://www.materialstoday.com>

Source: Elsevier

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