

David Carroll

Director, Center for Nanotechnology and Molecular Materials at Wake Forest University
Winston-Salem, NC, US

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Biography

Using technology at a nanoscopic scale, David Carroll and his research team aim to provide solutions to some of the world's most pressing problems: the need for affordable "green" or alternative energy sources and reliable treatments for deadly cancers.

In the green technology field, Carroll's research has yielded a new class of flexible, affordable solar cells; several replacements for energy-burning incandescent and dangerous compact fluorescent light bulbs; and a fabric that can power a cell phone using the caller's body heat. In the medical field, Carroll has developed nanotechnology that heats tumors until they die. Another nano-scale treatment helps surgeons regulate pressure in arms and legs during reconstructive surgery – greatly reducing the risk of amputation. He holds 12 patents and has been quoted in Discover magazine, the Raleigh News & Observer and WFDD.

Areas of Expertise

Nanotechnology, Green Technology, Solar/photovoltaic cells, "Green" lighting/light bulb alternatives, Thermoelectrics, Nanotechnology and medicine/tumor eradication, Environmental/health effects of carbon nanotubes, Biomedical nanotechnologies, Thermoelectric Power Felt, Organic solar cells, Nanocomposite-based display and lighting technologies

Affiliations

Engineering (Journal) : Editor-in-Chief, Journal of Biosensors and Bioelectronics : Board Member, Current Organic Synthesis (Journal) : Board Member

Education

Max-Planck-Institut für Metallforschung
Research Associate Physics

University of Pennsylvania
Postdoctoral Associate Physics

Wesleyan University
Ph.D. Physics

North Carolina State University
B.S. Physics

Accomplishments

Innovation Award

Recipient of the Innovation Award in 2015, presented by Wake Forest Innovations, for research achievements and contributions in the field of alternative energy.

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