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Related Faculty:

Seth Bank [2]

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Dr. Seth Bank's research into III-V compound semiconductors could cool down your laptop, increase the capacity and speed of fiber-optics, and make solar cells more efficient. Bank hopes to improve III-V compound semiconductors used for everything from cell phone transistors to LED's in traffic lights by embedding semi-metal nanoparticles in them.

One application for his nanocomposites is better connection between layers in multijunction solar cells. Bank is working with a start-up on this and hopes to demo state-of-the-art solar cells later this year. He is also working with ARO and DARPA on developing lasers that can detect trace gases and transmit over fiber-optics. Bank is also trying to grow a new material called graphene (a single layer of carbon atoms) that could replace current computer chip technology, conserving power and producing less heat.

Bank was helped recently when the National Institute of Standards and Technology gave his lab a molecular beam epitaxy (MBE) system. Such systems typically cost a million dollars. MBE has evolved into a popular technique for growing III-V compound semiconductors because it produces high-quality layers with good control of thickness, doping, and composition.



Source URL: <http://www.mrc.utexas.edu/news/nanocomposite-research>

Links

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