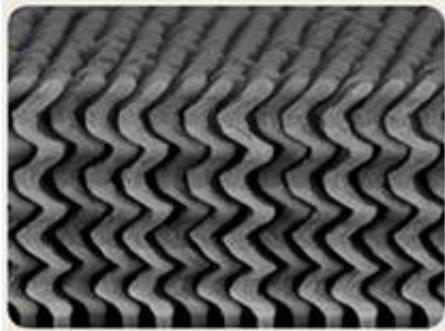


Rensselaer researchers to study nano springs, rods, beams

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Researchers at Rensselaer Polytechnic Institute are exploring the potential of nanomechanical systems by making and testing springs, rods, and beams on the nanoscale. They have been awarded a \$1.15 million grant from the National Science Foundation for the research.

Image: An array of tiny silicon springs, each with a diameter of about 150 nanometers.

The past decade has seen an explosion of interest in electronic devices at the molecular level, but less attention has been paid to nanoscale mechanical systems, according to Toh-Ming Lu, the R.P. Baker Distinguished Professor of Physics at Rensselaer and principal investigator for the project. "Nanomechanical devices may have as

important an impact as nanoelectronics, but a number of challenges need to be overcome before these systems can be practically realized," he says. "This represents a multi-billion-dollar high-technology industry that will save energy and improve the quality of lives."

Lu envisions a wide range of applications for these devices, including much more efficient light emitters and solar cells, extremely sensitive chemical and biological sensors, and super-high-density three-dimensional magnetic memory.

To achieve these advances, researchers need a better understanding of not only the growth and control of nanoscale structures, but also the way they respond to external forces such as heat, electric and magnetic fields, and mechanical stress, according to Lu. He has brought together a team of physicists, materials scientists, and mechanical engineers to address all of these issues.

"This is one more example of the wide array of interdisciplinary research being conducted at Rensselaer," says Omkaram "Om" Nalamasu, vice president for research at Rensselaer. "Collaborative work like this will help our society solve its most pressing problems in fields as diverse as energy security and information technology."

The \$1.15 million, four-year grant is part of a National Science Foundation program to develop Nanoscale Interdisciplinary Research Teams (NIRT) to catalyze synergistic research and education in emerging areas of nanoscale science and technology.

Source: Rensselaer Polytechnic Institute

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