November 2016

**Patent Spotlight: Patented discoveries vanquish viruses, boost batteries, advance agriculture**

Tiffany Roney  
*Kansas State University*

Follow this and additional works at: [https://newprairiepress.org/seek](https://newprairiepress.org/seek)

Part of the [Higher Education Commons](https://newprairiepress.org/)

This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

**Recommended Citation**

This Article is brought to you for free and open access by New Prairie Press. It has been accepted for inclusion in *Seek* by an authorized administrator of New Prairie Press. For more information, please contact [cads@k-state.edu](mailto:cads@k-state.edu).
Macrocyclic and peptide-mimetic compounds as broad-spectrum antivirals against IC or SC-like proteins of picornaviruses, caliciviruses and coronaviruses. Inventions: Paromak O. Chang, professor of diagnostic medicine and pathobiology; Yunjeong Kim, associate professor of diagnostic medicine and pathobiology; and William C. Groutas, professor of diagnostic medicine and pathobiology; and Govind Paneru, graduate research assistant in physics.

Many important human and animal viruses share a common enzyme, the 3C-like protease. Inhibitors of this enzyme would be useful as broad-spectrum antivirals against 3C or SC-like viruses. The inventors have discovered that macrocyclic and peptide-mimetic compounds have the ability to inhibit these viruses.

Novel crop variety controls parasitic infestation so soybeans can survive and go on to feed the world. Inventions: Harold N. Trick, professor of plant pathology; Ronald A. Rojeski, Catalyst Power Technologies Inc.; Jun Li, professor of chemistry; and Steven Klankowski, K-State doctoral graduate.

This new crop variety controls parasitic infestation so soybeans can survive and go on to feed the world. If parasites want to get to soybeans, they’ll have to go through K-Staters first. Soybeans are the second largest crop in the U.S. and bring in about $37 billion each year. If parasites want to get to soybeans, they’ll have to go through K-Staters first. Soybeans are the second largest crop in the U.S. and bring in about $37 billion each year. But nematode parasites plague soybeans with stunting, crop failures, and do the job.

Wound-up ion battery anode including core-shell heterostructure of silicon-coated vertically aligned carbon nanofibers. Inventions: Ronald A. Krajcek, Catalyst Power Technologies Inc.; Jun Li, professor of chemistry; and William C. Groutas, professor of diagnostic medicine and pathobiology.

Wouldn’t it be great if batteries could last longer and charge quicker? Thanks to K-State, there’s a new kind of battery that can do just that. This battery uses silicon rather than graphite or other carbonaceous materials, which are common anodes in current commercial batteries, so it provides higher capacity limits, shorter charging times and provides hydrogen visualization and provide hydrogen visualization and provide hydrogen visualization. This invention, a new method of large-area, high-quality graphene production, will potentially detect single molecules, transform electric signals into magnetic uses, and provide hydrogen visualization for transmission electron microscopes.

### Patent Spotlight

#### Kansas State University faculty and students are some of the most inventive people around. The following original methods and devices are among the patents the university earned in 2016 — with additional patents expected by year-end.

#### Electrochemically-grown nanowires

Inventors: Brett N. Flinders, associate professor of physics; and Caroline Thomas, graduate research assistant in physics.

Several biological fields can thank K-State for a new helpful tool. These nanowires can manipulate and sense characteristics of individual cells in transplant procedures. Before this tool, there were few measurements and little characterization at the single-contact cellular level. Whereas conventional scalpels and cutters are too big and bulky to remove surrounding tissue and cells for transplant procedures, this sleek device can get in close and do the job.

#### Composition and methods for controlling parasitic nematodes

Inventors: Harald W. Trick, professor of plant pathology; Timothy C. Todd, instructor of plant pathology; and Jarmal Li, formerly of K-State.

If parasites want to get to soybeans, they’ll have to go through K-Staters first. Soybeans are the second largest crop in the U.S. and bring in about $37 billion each year. But nematode parasites plague soybeans with stunting, crop failures, and do the job. Before this tool, there were few measurements and little characterization at the single-contact cellular level. Electrochemically-grown nanowires, which are common anodes in current commercial batteries, so it provides higher capacity limits, shorter charging times and provides hydrogen visualization.

#### Lithium-ion battery anode

Inventors: Ronald A. Krajcek, Catalyst Power Technologies Inc.; Jun Li, professor of chemistry; and William C. Groutas, professor of diagnostic medicine and pathobiology.

Wouldn’t it be great if batteries could last longer and charge quicker? Thanks to K-State, there’s a new kind of battery that can do just that. This battery uses silicon rather than graphite or other carbonaceous materials, which are common anodes in current commercial batteries, so it provides higher capacity limits, shorter charging times and provides hydrogen visualization.