



U.S. moves to first-inventor-to-file patent system, impact uncertain

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On September 16, 2011, President Barack Obama signed into law the America Invents Act of 2011, authorizing the most major patent reform since 1952. The Invents Act aims to spur innovation and create jobs, but some worry that the change from the current first-to-invent patent system in the United States to a first-inventor-to-file system will favor large companies and lead to other unintended consequences that could negatively impact innovation in the United States.

Under current law, the order in which two or more near simultaneous patent applications are filed for the same invention makes no difference—the patent is awarded to the first inventor. However, under the new law, effective March 16, 2013, the patent will be awarded to the first inventor to file for a patent. How this change will affect materials innovation is not yet clear.

One motivation for moving to the first-inventor-to-file system is that U.S. patent requirements will align more closely with those in other countries, which are all based on a first-to-file system. Another is to streamline the patent application process, said Director of the United States Patent and Trademark Office (USPTO) David Kappos in a live video chat hosted by the White House after the bill was signed. The USPTO has a backlog of nearly 700,000 patent applications to review, and the average review time currently borders on three years. The USPTO is working to reduce this time to 20 months, said Kappos.

However, some are concerned that the wait time may actually increase as a result of this change. If, under the first-to-file system, inventors feel pressured to file patent applications as soon as possible for every idea, the United States

could see a large increase in the overall number of applications. Also, more inventors are expected to file preliminary patent applications under the Invents Act. Preliminary patent applications enable inventors to establish an early filing date for a low fee, and then claim that date on the actual patent application filed up until one year later. These numbers are expected to increase since the filing date, not the date of invention, will be the key to receiving a patent.

ates a proprietary particleboard substitute based on a technology developed during his time at the Cornell Center for Materials Research. The material, made from soy protein and natural fibers, is now on the market and the company is growing rapidly, currently employing 30 people. This is the type of job-creating innovation that the patent system is meant to support and encourage.

However, some speculate that the America Invents Act will make it more difficult for small businesses and individuals to secure patents, and that an increasing percentage of patents will be owned by large corporations. “Under first-to-file, one should file early and often on each idea, however impractical it later proves to be. That burden falls disproportionately on smaller companies for whom patenting expenses are material,” said Gary Lauder, the managing



Photo courtesy of Senator Patrick Leahy

Patrick Govang, a former director of the Cornell Center for Materials Research who left in 2006 to form a start-up company, said that the long wait for a patent can hinder innovation. The longer the patenting process takes, the more money a company has to raise or invest at a time when its risk profile is the highest, he said. “The real value of a company is the value of the technology, and the value of the technology is defined by intellectual property.”

Govang’s start-up, e2e Materials, cre-

partner of Lauder Partners LLC, a Silicon Valley-based venture capital firm that invests in information technologies. The Invents Act also weakens the grace period that inventors have to refine their ideas, explore the market, and raise capital before filing for a patent. “[The current one year grace period] enables entrepreneurs to present to investors, share plans with potential hires, or exhibit at trade shows during that time without concern. . . . Under first-to-file, if someone else finds out about your in-

vention, and if they apply first, they can win,” said Lauder.

Kappos disagrees that the new regulations will discourage individual inventors and small businesses, and highlights the increased security provided by the Invents Act. “For the first time, [the patent system] enables independent inventors to get in, file a patent application, and have assurance, certainty, at that point and for all points forward that they are going to be the ones to get the patent. Nobody else is going to come in later, file a patent application, and claim to have invented it earlier,” he said. The Invents Act includes other new measures to support individual and small businesses innovation, such as a fee structure that reduces the filing cost for so-called small entities.

Materials advances are essential to innovation, said Leon Sandler, executive director of the Deshpande Center for Technological Innovation at the Massachusetts Institute of Technology (MIT). “New materials are the building blocks and enablers that allow product innovations to happen,” he said. “Think of energy, medical devices, electronics, transportation, and communications. All are dependent on the performance and properties of materials. Without the development of new materials, innovation in these areas would grind to a halt.” The Deshpande Center funds novel, early-stage research at MIT and connects researchers to the business community. Current projects range from developing tissue-specific adhesive for medical use to a system for dissipating heat from

high-power electronics.

The effect that the America Invents Act will have on materials innovation is unclear. However, Sandler remains optimistic. “At a very high level I don’t see the patent procedures changing people’s desire to innovate and start companies. I am sure they will continue to do so and will adapt what they do to the new procedures,” he said.

Senate Judiciary Committee Chair Patrick Leahy (D-Vt.) and House Judiciary Chair Lamar Smith (R-Texas) jointly sponsored the bill, which received strong bipartisan support. For more information on the America Invents Act and the changes it brings to the U.S. patent system, visit the USPTO website at www.uspto.gov/aia_implementation.

Kendra Redmond

South Africa launches Center for High-Resolution Electron Microscopy

The National Research Foundation (NRF) in South Africa has announced the opening of the Center for High-Resolution Electron Microscopy at Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth on October 11, 2011. The center, headed by Jan Neethling of NMMU, is designed to operate as a world-class facility focused on key areas that the South African Department of Science and Technology (DST) has identified as grand challenges.

The grand challenges include research in energy such as nuclear, clean coal, and coal-to-liquid as well as fuel cell and catalyst research for use in the hydrogen economy. Research priorities also include space science, particularly in the area of semiconductors and optoelectronic devices. The DST also emphasizes research in biotechnology.

With nanotechnology rapidly becoming an important area of research and development, the center will enable South Africa to take a lead in the exploration and evolution of this new scientific frontier, according to the NRF.

Scientists from South Africa, Africa, and other regions of the world will be able to use the research instruments in the center. Among the major equipment are a double Cs-corrected high-resolution transmission electron microscope (HRTEM) with energy-dispersive x-ray

spectrometry (EDXS) and electron energy-loss spectroscopy (EELS) detectors; a TEM with EDXS and EELS; a scanning electron microscope (SEM) with EDXS, wavelength-dispersive x-ray, and electron backscatter detectors; and a focused ion beam SEM. An atomic force microscope and a nanoindentation instrument, as well as various sample preparation equipment, are available to users. The center plans to include additional SEMs and TEMs for more routine work.

In order to fulfill its objectives, the center will train postgraduate students at master’s and doctorate levels as well as staff and students from other institutions and private companies. The center will engage in basic and applied research, with emphasis on multi- and cross-disciplinary, grant-funded research undertaken in cooperation with local and international collaborators. The center will also conduct contract research with the aim of solving industry-specific problems.

The facility is the result of cooperation and funding from the DST, NRF, the Department of Higher Education and Training, and Sasol, addressing a critical need in the country’s efforts to become a global leader in the field of science and technology, according to the NRF. □



The Center for High-Resolution Electron Microscopy opens at Nelson Mandela Metropolitan University in South Africa.