

tage over competitors, limited customer and supplier concentration, and others. In addition, Bauer says he has identified other technologies that should be of interest to the 50 or more technology companies in Foundation Capital's investment portfolio.

"Technologies that present a 20–50% improvement over the state of the art may not be able to support a new start-up, but can be a great addition to the product portfolio of an established company," he said.

The EIR program does not preclude other parties from working directly with the lab on commercialization opportunities, but the EIR receives a right of first refusal for up to 180 days to allow for the negotiation of licensing agreements to the one or more inventions that will be needed for a spinoff. The bidders for DOE's new solicitation, which closes on 6 January, are asked to specify which labs they'd prefer to do business with.

"Planetary emergency"

David Wells, a partner at Kleiner Perkins Caufield & Byers, said the firm was responding to an open solicitation from DOE when it applied last year to place an EIR at NREL. "We are very clear at this firm that we are facing a planetary emergency," and that KPCB

"should overlook no opportunity" to address climate change and the need for clean energy, he said.

The first six months at NREL "has been a learning process" both for KPCB and DOE in that the EIR program "wasn't designed down to the last detail," Wells said. "The belief that there are great [technology] resources at NREL is on the way to being proven correct."

Like Bauer, Wells declined to be specific about technologies of interest. He said the firm looks only for "disruptive innovations," as the basis of a new company. "The culture of KPCB is to seek the home runs." It's too soon to say if the company will suggest improvements in the labs' tech transfer process or whether KPCB might continue with the EIR at NREL or another lab when the current program ends in March, he said. But Wells said the program has already shown itself to be "enormously successful," since KPCB's expectations were "more nuanced" than the single goal of discovering a startup opportunity. "Our goals included strengthening our relationships with DOE and its lab system and enlarging our network." For DOE, the program has provided "insights into the way venture capital firms do business," he added.

David Kramer

NASA sells technology rights to highest bidder

History was made in Chicago this past October at a public auction that saw the first-ever sale of rights to government-owned patents. A bidder picked up an exclusive license to a group of NASA patents for signal-processing technology at the event, which was organized by intellectual property managing firm Ocean Tomo LLC. Darryl Mitchell, a technology transfer manager at NASA's Goddard Space Flight Center, which filed the patents, says technical applications under that license range from voice recognition to financial market modeling.

Known as the Hilbert–Huang transform, the technology covered by the license is a set of algorithms to convert nonlinear, nonstationary signals, such as from ocean or acoustic waves, into frequency data. The patents netted \$55 000 plus an undisclosed percentage in ongoing commercialization royalties for Goddard and inventor Norden Huang, a former NASA oceanographer. Goddard's revenue from the sale will go back into R&D and technology transfer

programs, says the center's innovative partnerships program office chief Nona Cheeks.

Circumventing hurdles

It took about a year for Goddard and Ocean Tomo to navigate regulations and get the go-ahead for the auction. "We can't do that" was the gut reaction for many people across the agency," says Mitchell. "Our main goal was to demonstrate that this could work." The auction was also the first time Ocean Tomo had sold licenses rather than patents.

The biggest hurdle to NASA's participation in the auction, says Mitchell, was a federal requirement that any exclusive licensing be subject to public comment, which could nullify the transaction. "[That] doesn't work so well in an auction," he notes. NASA's legal team addressed the requirement by licensing the patents before the auction to an Ocean Tomo subsidiary that then transferred the license to the winning bidder. Potential bidders also had

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Bidders, sellers, and spectators gather in Chicago to witness the sale of NASA-generated signal-processing technology in the first auction of exclusive rights to government-owned patents.

to satisfy federal law by prequalifying as US domestic companies and showing a commercialization plan for the technology.

Whether auctions catch on with companies interested in mining patented government technology remains to be seen. Already, though, Mitchell says the NASA–Ocean Tomo partnership has prompted calls from other federal laboratories as Ocean Tomo prepares for its next auction this March in San Francisco. “We were encouraged by what we saw,” says auction attendee Gary Jones, the Washington, DC, representative for the Federal Laboratory Consortium for Technology Transfer. The consortium, he says, will look into public auctions as a potential tool for its members, which include NIST and several Department of Energy laboratories.

Also taking notice are universities, where research, according to the latest NSF statistics, is about 64% federally funded and is subject to rules comparable to those at federal labs. “NASA is setting somewhat of a precedent for the rest of us,” says Patrick Jones, director of the University of Arizona office of technology transfer and immediate past president of the Association of University Technology Managers. “But I don’t think you’ll see a stampede of universities entering auctions.” Auctions, he continues,

“lack the essence of knowledge transfer, [which includes] the transfer of graduate students to industry.”

Casting a wider net

NASA and other federal agencies have traditionally advertised their intellectual property in technical briefs and other trade publications or have negotiated with individual prospective buyers. What the auction does, says Connie Chang, director of Ocean Tomo’s federal branch, is “cast a wider net” and “take away the burden of a one-to-one negotiation, which takes a really long time.” Chang adds that the auction atmosphere generates a “true market-based price” and lowers transaction costs. Says Ajit Vaidya, a patent attorney in Washington, DC, “Auctions may prove to be a very good technology transfer mechanism for institutions, like federal labs and universities, which have a broad suite of patented technologies, where it is unclear who may be interested in commercializing the technology, or where there are a very large number of potential partners.”

Meanwhile, NASA continues to receive post-auction attention: The agency and Ocean Tomo have been contacted about unsold patents related to a GPS system for spacecraft and a capacitance-based sensing technology.

Jermei N. A. Matthews

just fact-checking—we don’t want to come in after the fact and clean up. We want people to talk early on in projects.”

Ouellette is responsible for “sussing out what kind of scientist” will best address inquiries from the entertainment industry. The service is free, although collaborations may develop into paid consulting gigs, she says. After the kick-off symposium, she adds, “I started getting e-mails immediately from entertainment people needing everything from a grad student to look over a draft script to an epidemiologist to consult for a new TV series, all the way to a guy who is doing a major blockbuster movie and wants to assemble a think tank of scientists beforehand to help him toss around ideas and come up with new interesting things for his plot.”

Eventually, says producer Janet Zucker, one of the Exchange’s founders, “I want to expand into an ongoing series of mini salons”—informal discussion groups. “One outcome I’d like to see is more accurate science because I think it will make the story better. People will see that what is actually happening is stranger and more interesting than what they dream up.”

Zucker and her husband, director Jerry Zucker, have a daughter who was diagnosed with diabetes at age 11. The Exchange, she says, “was an outgrowth of our efforts on stem cell research. We got very involved with taking a look at potential avenues for research and cures”—and with California’s Proposition 71, which was passed to direct state funding to stem cell research in the wake of the Bush administration’s funding restrictions. They met NAS president Ralph Cicerone a few years ago and, he says, “I was so impressed with some of the films they produced, not only for fun but the public service announcement they had produced on behalf of medical research, that we just decided to stay in touch.” About a year ago, Cicerone says, the Zuckers “thought there was enough interest in Hollywood among writers, directors, and producers that if we could provide a service—to be kind of like a 1-800-scientist phone line—they said there was a lot of demand. So, that’s how [the Exchange] got started. We were responding to expressed interest in Hollywood for access to science information and to scientists.”

In the case of *Watchmen*, says Kakalios, “One thing I’ll never forget: [the production designer Alex McDowell] got very excited when I showed them a picture of a blackboard in a theoretical physicist’s office. It looked real—not like in a typical Hollywood movie with a random collection of

Scientists entertain Hollywood queries

Jim Kakalios got stars in his eyes when the National Academy of Sciences asked if he’d like to consult for the makers of a movie based on the 1986 graphic novel *Watchmen*. “There was the fan-boy aspect of my personality. ‘Oh my God, they are making a *Watchmen* movie. That will be so cool!’” says the University of Minnesota physics professor, author of *The Physics of*

Superheroes (Gotham Books, 2005). The matching of Kakalios with the movie’s production designer was a test case, made well before NAS and its Hollywood partners officially launched the Science and Entertainment Exchange with a symposium on 19 November.

“We are looking to foster creative collaborations,” says Exchange director Jennifer Ouellette. “We don’t want to do