

[Chemical & Engineering News](#)

# Science & Technology

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Web Exclusive

## Materials At The Movies

[Bethany Halford](#)

Dim the lights and get your popcorn ready. Winners of the Materials Research Society's first ever film festival have graciously agreed to share their award-winning motion pictures with C&EN Online.

Films in the professional category were produced by or with the help of media professionals. Filmmakers in the amateur category created their motion pictures on more of a shoestring budget.

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**Professional**

**First Prize**

## Video



Hitachi Research:

Kim-Phuong (Kim) Nguyen, Press Relations

Eliza Y. Chan, Corporate Communications

Mary Chagnon, Marketing Communications

*Submitted by Zvonimir Bandic, Research Staff Member, Hitachi Research*

[Launch Video](#)

\* Macromedia Flash Player 8 is required to view video.

## "Get Perpendicular"

Perpendicular magnetic recording. Sure, you know what the words mean, but what do they mean when you put them together?

Worried that consumers would be clueless about the cutting-edge data storage technology in their Travelstar 5K160 hard drive, Hitachi called on its top-notch marketing team, Kim Nguyen and Mary Chagnon, to tell the world about the wonders of perpendicular recording.

The technology is difficult to explain, Nguyen says, so simply putting out a press release on the concept was unlikely to elicit much enthusiasm from the general public.

Inspired by the popular "Schoolhouse Rock!" educational short films of the 1970s and '80s, she and Chagnon decided to use animated dancing data bits and a catchy tune in lieu of more common corporate communication. In the spring of 2005, they released "Get Perpendicular" by seeding the film with about 10 blogs.

The hits to Hitachi's website shot from 15,000 per day to more than 100,000. "Our Web team called us and said, 'What's going on?' " Chagnon recalls.

"We knew we had achieved success when we heard that our competitors were using the video to explain to their customers what perpendicular recording is," Nguyen tells C&EN.

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**Professional**

**Second Prize**

## Video



Adam Smith, Host

Robert C. Dynes, The Scientist

Dave Ari, The Nutty Professor

John Moores, The Peanut Man

Ivan K. Schuller, The Physicist

*Submitted by Ivan K. Schuller, Distinguished Professor of Physics, University of California, San Diego*

[Launch Video](#)

\* Macromedia Flash Player 8 is required to view video.

## "When Things Get Small"

Ivan K. Schuller and Rich Wargo created the production company Not Too Serious Labs, hoping to create scientific material for the media that's entertaining enough to keep audiences laughing while they're learning. If the 10-minute version of "When Things Get Small" screened at MRS is any indication, Schuller, a physics professor at the University of California, San Diego, and Wargo, a producer at UCSD-TV, have found their calling.

"I think that there is a large group of people out there who are interested in science but who get turned off by extremely technical movies," Schuller says. But science cinema doesn't have to be that way. With the help of shrinking elephants and stadium-sized peanut bowls, "When Things Get Small" accurately explains intricacies of nanotechnology in just 27 minutes.

The film garnered five wins at the 2006 Emmy Awards for the Pacific Southwest chapter. The Emmys recognize outstanding television. The film has been featured at science museums and film festivals in Chile, Spain, Australia, and India.

When they saw how well "When Things Get Small" was received, Schuller and Wargo wondered if it might be the beginning of something bigger. They'd like to make a whole series along the same lines: "When Things Get Big," "When Things Get Cold," et cetera—if they can drum up the funding.

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**Professional**

**Third Prize**

## Video



Beckman Institute, University of Illinois:

Benjamin Grosser, Producer

Alex Jerez, Director, Modeling, Animation, Compositing

Darren Stevenson, Video, Editing, Compositing

Janet Sinn-Hanlon, Modeling, Animation

John A. Rogers, Research

*Submitted by Alex Jerez, Visualization Specialist, Imaging*

[Launch Video](#)

\* Macromedia Flash Player 8 is required to view video.

## "Stretchable Silicon"

Alex Jerez and his coworkers in the Imaging Technology Group at the Beckman Institute, University of Illinois, Urbana-Champaign, made 58 versions of "Stretchable Silicon" before achieving the visual pop and technical accuracy they were after. Such attention to detail becomes evident when a patient's vital signs appear on his surgeon's gloves in one of the film's futuristic scenes.

Scientists and the media are discovering that animation isn't only for video games and blockbuster movies, Jerez says. "Audiences at this point are extremely sophisticated. They're looking for something that grabs their attention and explains what they're looking at."

To achieve this, Jerez, a computer scientist by training, works very closely with scientists on all of his films. "You have to keep a very open channel of communication," he says. "I might not understand what's going on with all the science, but what I do helps deliver the message in a way more people can understand."

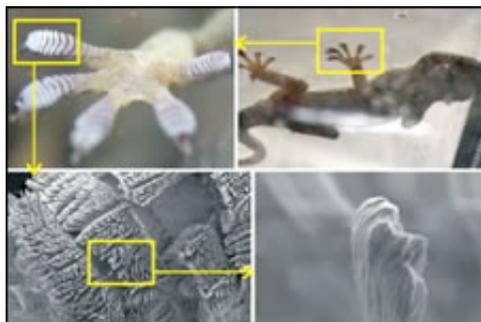
"Plus, you get to see so much interesting research," Jerez adds. "That's one of the beautiful things about working here."

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Amateur

First Prize

## Video



Tokyo Institute of Technology:

Jose Berengueres, Pilot

Ken Tadakuma, Camera

Shigeki Saito

Submitted by Jose Berengueres, Ph.D. Candidate

### [Launch Video](#)

\* Macromedia Flash Player 8 is required to view video.

## "Gecko – On Shape and Function of Gecko Foot-Hair"

Forget about Spiderman. Today's coolest wall-scaler is Geckoman, who, with the help of his gecko-inspired Mag-Pad climbing system, literally scales Tokyo's walls.

Although MRS conferees may think of Jose Berengueres as Geckoman, the mild-mannered Ph.D. candidate is actually better known as Idea-man by his colleagues at Tokyo Institute of Technology. And it's easy to see why as you watch him use the biomimetic climbing system he invented to clamber up metal walls and poles in his prize-winning film "Gecko—On Shape and Function of Gecko Foot-Hair."

"I like to make video clips," Berengueres says. "In some fields, such as robotics, a movie is a powerful way to explain what one did." It's also a good medium for showing how much fun gecko-inspired climbing can be. The film drew heavy traffic to Berengueres' poster at MRS, where attendees could try out one of the magnetic hand pads.

In case you're curious about getting your own gecko-style superhero setup, there's a patent pending on Mag-Pad, but Berengueres tells C&EN he'd like to see the idea licensed. Right now, Mag-Pads work only for climbing on ferromagnetic structures, but Berengueres is working on a new design for all-surface scaling.

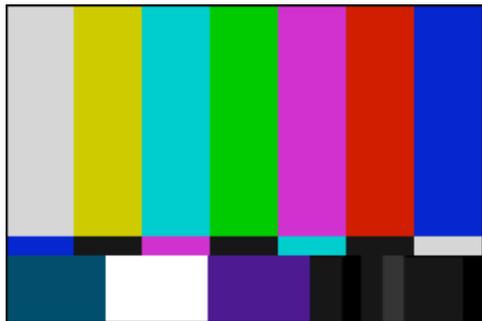
*Note: At the MRS meeting, Berengueres screened a version of the film with music from Hayao Miyazaki's 1986 animated film "Castle in the Sky." For copyright reasons, the music has been left out of this version.*

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Amateur

Second Prize

## Video



Video not available by request.

*Submitted by Adam Walter Feinberg, Postdoctoral Fellow, Harvard University*

## "Muscular Thin Films: Bio-hybrid Materials for Soft Robotics"

Because the scientific material in "Muscular Thin Films: Bio-hybrid Materials for Soft Robotics" hasn't been published yet, filmmaker Adam Walter Feinberg, a postdoc at Harvard University, declined to screen the film here.

The film features the titular materials crawling and swimming around, accompanied by Feinberg's velvet-voiced narration and open-source music—a soundtrack that sidesteps copyright problems for amateur filmmakers.

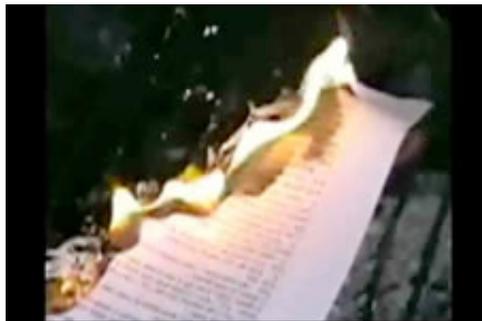
Feinberg, whose only previous filmmaking experience had been with his wedding videos, made the entire movie with the video mode on his lab's point-and-shoot digital camera and some free video-editing software. It's a wonderful testament to how far a little creativity can go toward making scientific cinema in the 21st century. C&EN looks forward to the film's worldwide release

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**Amateur**

**Third Prize**

## Video



University of Illinois, Urbana-Champaign:

Jonathan Hollander, Cowriter, Announcer

Sam Winslow, Cowriter, Kenny

Chris Wozniak, Iron/Steel

Mark Nowakowski, Zirconia

Jon Bayers, Captain

Wui Siew Tan, Water

Ryan Jensen, Teflon

*Submitted by Jonathan Hollander, Ph.D. Candidate, University of Cambridge*

[Launch Video](#)

\* Macromedia Flash Player 8 is required to view video.

## "Material Combat"

Despite what you might think after watching "Material Combat," filmmaker and University of Cambridge graduate student Jonathan Hollander says there was no alcohol consumption involved in either the conception or filming of the movie.

Rather, he tells C&EN, it was the product of a silly-but-sober effort to create a crowd-pleasing materials science showcase for the 2004 Engineering Open House at the University of Illinois, Urbana-Champaign, where Hollander and cocreator Sam Winslow were undergraduates. It garnered the event's People's Choice award.

A spoof of the Japanese game show "Most Extreme Elimination Challenge," the film shows what would happen if different materials—portrayed by a cast of materials scientists—were pitted against one another in a battle to the death. "Material Combat" may not be the most serious of scientific films, but it's incredibly funny.

All joking aside, Hollander thinks more and more scientists will be using movies (although probably not in the same genre as "Material Combat") to report their research in the future. "The concepts we deal with can be very difficult to explain," he says. "Movies get the concept across in a visual and realistic way."

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