

*The Hertz Foundation identifies and empowers America's outstanding graduate students in the applied physical, biological, and engineering sciences.*

## 2007 Hertz Symposium

March 16-18, 2007

The Hertz Foundation Board of Directors is pleased to announce that the second national conference for Hertz Fellows and Friends will be held March 16-18, 2007 in San Jose, California at the Fairmont Hotel.

Sessions will be structured to allow dialogue with the featured speakers and in-school Fellows will feature their work during several poster sessions over two days. The final session on Sunday morning March 18th will include discussion round tables on topics of general interest to all Fellows.

Mark your calendars and schedule your business trips nearby. Plan to attend a fun, stimulating, informative symposium with some of the nation's most creative and talented leaders in science and technology.

## News and Observations

Dr. John F. Holzrichter, President



I am pleased to introduce our first Hertz Foundation newsletter, which includes updates of our activities, great photographs, and exciting new plans at this dynamic time. Our purpose is to encourage your comments and to increase dialogue between you and the Foundation.

The Hertz Foundation continues to provide support, now more important than ever, to innovative graduate students in the applied physical, biological, and engineering sciences. The award is highly valued by the Fellows receiving it and equally valued by their faculty advisors and university administrators. The main value, expressed by virtually all persons with whom we have spoken, is that the Fellowship frees the recipient from bureaucratic constraints, hence it can be used to support high-risk, innovative work that usually takes five years to complete.

In contrast to the Hertz Foundation model, federal and state sponsored higher education is under pressure to reduce project funding, to support students for less time, and to accommodate so-called political imperatives. In spite of recent calls for proper support, the real trends are downward.

As part of our ongoing analyses of outcomes attributable to Hertz support, we continue to appreciate commentary from all of you regarding the degree to which Hertz impacted your careers. In our last study, we found that the Hertz Fellowship has made a significant difference in almost all of our Fellows' careers and in the quality of technical leadership in the nation.

The new Fellows who were interviewed last winter and spring are extremely talented and dedicated. In response to suggestions from the in-school Fellows regarding their desire to interact with one another on a regular basis, we launched the first of our biennial symposia on March 18-20, 2005. It was very successful (see details). The next national gathering is planned for March 16-18, 2007, so please put this on your calendar and plan to join us.

In addition, we began a program of self-organized regional Fellow's retreats and dinners, which have been great fun. Late last spring, I was able to visit many more of the Hertz schools. We started in Boulder, meeting Professor Carl Wieman at JILA (Hertz, Stanford 1973-1977) and local Fellows, then Northwestern University, the University of Chicago, the University of Illinois at Urbana-Champaign, and Carnegie Mellon University in Pittsburgh. We find that the sense of community is increasing with improved communications, such as the new, up-to-date, nicely organized Fellows' Directory, local dinners, and other activities.



## Board Leadership Enriched

At the October Board Meeting, five outstanding individuals were elected to join the Fannie and John Hertz Foundation Board. Their diverse talents and experiences will add value to the discussions and plans of the Foundation. They have demonstrated an understanding of and commitment to the Foundation's support of tomorrow's leaders in applied science and technology. Joining the Hertz Family are: Dr. Ruth David, President of Anser Corp, Washington DC; Professor Ilene Busch-Vishniac, Professor and Dean at Johns Hopkins; Dr. Daniel Weise, Consultant, Microsoft; Dr. Sidney Singer, formerly of Los Alamos and presently in real estate development; and Major General (Ret) Paul D. Nielsen, Director of the Software Institute at Carnegie Mellon.



Dr. Gregory H. Canavan, Chairman of the Board of Directors since 1993.

*News and Observations continued*

There are several exciting changes taking place at the Foundation. The first is the evolving Foundation-governance, which includes the addition of five very talented and experienced new Board members. The second is the Foundation status has changed from a private foundation to a public charity; and with the help of so many of you, we are rebuilding the Foundation's endowment. In spite of the big stock market drop off a few years ago, your gifts, strong Board support, and clever administration have enabled the Foundation to continue to award 15 new Fellowships each year and to increase the quality of the Fellow's support. Our goal is to obtain the financial resources for the 30-40 finalists we identify each year who would benefit from the Hertz Foundation's assistance.

We thank you for your interest and for the many important gifts that are enabling the Foundation to continue to make a significant difference. In closing, I want to express my deep appreciation to our great Foundation staff, the volunteer interviewers, and the many others who have been so helpful as we identify and support tomorrow's leaders. Best wishes to all of you in this coming year.

*Prior to becoming President of the Hertz Foundation in 1999, Dr. John Holzrichter directed the Lawrence Livermore National Laboratory's internal research program for 12 years. He also continues to serve as a senior scientist at the Lawrence Livermore National Laboratory, and as a research professor at the University of California at Davis.*

## Thomas Friedman, the Flat World, the Hertz Foundation, and Defense of the Realm

*Dr. Jay Davis*

If you've not heard by now of Thomas Friedman's book, *The World is Flat*, you must be living in a cave, frantically cutting code in a Silicon Valley startup, or working really deep in a lab on your thesis project. Most books that excite the Chattering Classes at the peculiar intersection of economics, business, management and societal reaction are deadly. The average author of such studies seems cursed by the belief that if four examples for each of his thoughts are good, fourteen must surely be better. Friedman makes none of these errors, his book is a delight, and it is relevant to what we at the Hertz Foundation are about.

His central thesis, bolstered with clever examples ranging from industrial production to the practice of law to success in radiology, is that every process needs to be decomposed into its parts to see if benefit can be obtained by doing it elsewhere. The drive is not to just make the task cheaper (an endless race to the bottom) but to make it better so one's share of a larger pie goes up. The examples are good, come at one from unexpected angles, and both teach and inspire. His main negative point, and it is sobering, is that without excellent educational systems and people skilled in creativity, a society is weaponless in a serious arms race.

Enter the Hertz Foundation. For over forty years, the Foundation has asked Fellows to honor John Hertz's wish that they pledge themselves to make their skills available, in a manner of their choosing, to support the Nation's security in time of need. Some Fellows (or prospective Fellows) have worried that this implied military service, work in the defense industry, or even worse. Friedman has shown us a world in which the fields of service to the Nation's security are broad beyond previous imagination.

If you teach, if you run a business, if you do research in a lab, you all have equal potential to defend the realm against the pressures and stress of Friedman's vision. If we are to avoid a future in which a few bright people struggle to carry a non-competitive mass, we have to excel and act as multipliers on the efforts of others. The Foundation asks you to see this challenge and act to master the dynamics of this new world. One expects that John Hertz would have had little difficulty in so doing.

*Dr. Jay Davis, a Hertz Board Director since 1993, is founding Director of the Center for Accelerator Mass Spectrometry at LLNL and founding Director of the Defense Threat Reduction Agency of DoD.*

## Thesis Application Award—Mike Montemerlo

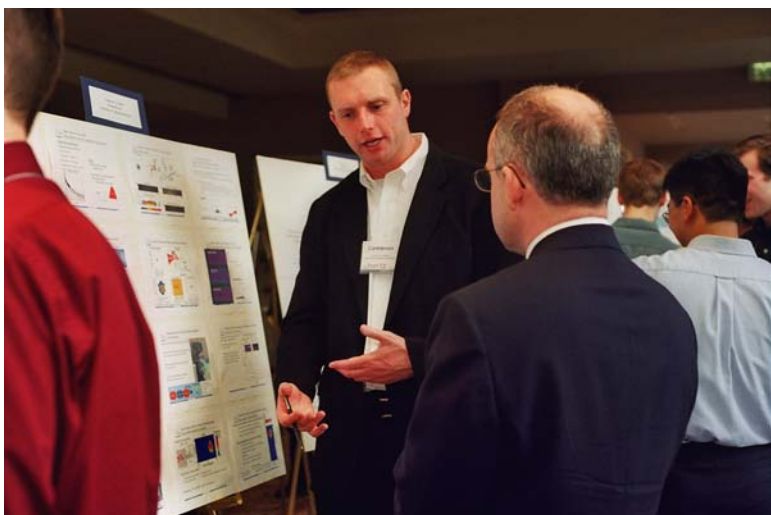
On November 29, 2005 the Hertz Foundation presented Mike Montemerlo with an award for his application of Robotic Localization and Mapping—the first award of its kind. Mike's work contributed to the victory of the Stanford Racing Team in the 2005 DARPA Grand Challenge, an off-road robot race across the Mojave Desert on October 8, 2005.



Mike Montemerlo, after his vehicle "Stanley" completed 100 straight autonomous miles in the desert (that is what the tower of stones is for) at the DARPA Grand Challenge.

## 2005 Thesis Award—Cameron Geddes

The Board of Directors unanimously agreed that Cameron Geddes would receive the 2005 Thesis Prize for his work entitled: *Plasma Channel Guided Laser Wakefield Accelerator*. Following his graduation, Cameron explored many job opportunities prior to accepting his present position as a physicist at Lawrence Berkeley Laboratory.



Cameron Geddes shares his research with participants at the Symposium during the West Coast poster sessions.

***"The Fellowship allowed me to join a then-small group in the emerging field of advanced particle accelerator development, and hence facilitated work in which we demonstrated for the first time production of high quality electron beams from compact laser driven accelerators. Such accelerators are developing as next generation sources for applications from femtosecond materials science to high energy physics beyond a TeV to medical radiography."***—Cameron Geddes

Dr. John Browne, Board Director since 2000, former Director, Los Alamos National Laboratory, reading Fellowship applications.



## The Hertz Fellowship Selection Process

The Interviewers for the Hertz applicants are mid-way through the process under the leadership of Dr. Tom Weaver. The first round interviews were held for 184 applicants. Our special appreciation to the 6 volunteers who read over 677 applications and the 30 volunteers who completed the initial interview process. Soon the second round of interviews will be completed for the 60 finalists. When the Board meets on March 17th, the Class of 2006 Fellows will be selected. With so many talented individuals worthy of awards, the Foundation will be limited only by the resources available. Thank you for your support during the past year. Know that your investment in the program is critical to the future of many of these candidates.

### Hertz Fellows Class of 2005

662 Applicants  
27 Volunteer Interviewers (23 Alumni)  
15 Fellows  
10 Schools

### Hertz Fellows Class of 2006

677 Applicants  
30 Volunteer Interviewers (25 Alumni)  
Selection March 17, 2006



## Named Endowed Fellowships—Matching Gift Opportunity

Thanks to the generous Matching Gift Challenge of Hertz Fellow John Wakerly (Stanford 1970-73), we launched a new program for the Foundation—“Endowed Fellowships.” These Fellowships can be named in honor of the donor or someone the donor recognizes. A fully endowed Fellowship can be established with a gift of \$600,000. However, for a limited time a donor can establish an endowed Fellowship with a gift of \$300,000 which will be matched by the Wakerly Challenge Fund.

## Endowed Fellowships

We are proud to announce the first two named Fellowships established by Hertz Fellow Ray Sidney (MIT 1991-95) in honor of two of his professors, one at MIT and one at Caltech. Ray honors these Professors for their special talents and the impact they had on his education.

David Van Valen at Caltech is holding the Professor Abu-Mostafa Fellowship and Monika Schleier-Smith at MIT is holding the Professor Daniel Stroock Fellowship.

This spring Ray Sidney is establishing another Endowed Fellowship in honor of Professor Silvio Micali at MIT. The student holding that Fellowship will be a member of the Hertz Class of 2006.

## Estate Gift—Leave a Lasting Legacy

The Hertz Foundation is launching a planned giving program to encourage Fellows, Friends, and donors to include the Hertz Fellowship Program in their estate plans.

Consider naming the Hertz Foundation in your will to ensure that the Hertz Fellowship program will continue investing in tomorrow’s leaders in science and technology. Help build a better world, one Fellow at a time.

A Friend of the Foundation, Sid Singer, generously named the Foundation as the beneficiary of his estate. After a review of several institutions for his gift, Sid decided that the Hertz Foundation mission and goals are compatible with his. He will leave a lasting legacy allowing the Foundation to support tomorrow’s leaders as they pursue their dreams.

*Dr. Sid Singer retired from Los Alamos National Laboratory in 1994 following an illustrious career that began in 1956 when he joined the staff. Since retirement, Sid has been active in economic development in North Central New Mexico, in public service, and in real estate development in Santa Fe and Los Alamos. His company SISTOS, Inc. stands for Science In Service To Society.*

**Images** (left to right): David Van Valen, Monika Schleier-Smith, Dr. Ray Sidney, Hertz Alumni 95 and Dr. Sid Singer.

***“I like the fact that the selection process for Hertz Fellowships is very much an individual look at the applicants, as they do in-depth interviews and that’s really the way you can learn about somebody and their capabilities as opposed to looking at a sheet of paper with numbers or random statistics....”***

—Ray Sidney

***“What really changes the world, largely for the good are the talented people, very few talented people. I was always concerned with how those people were supported. I wanted to donate my estate to someone who nurtures those young people. Then I found the Hertz Foundation.”***

—Sid Singer

**Images** (left to right): Participants engaged in discussion; Larry Page, Co-founder Google Inc.; Current Fellows Mikhail G. Shapiro, MIT and Michael Fischbach, Harvard, at the East Coast Fellows poster session; Dr. Leroy Hood, President and Co-founder, Institute for Systems Biology.



*“I planned to spend a few hours but ended up staying the entire day. It was the best conference I have attended in my life.”*

—Larry West, Hertz Alumni 1984

*“There wasn’t a single session that I didn’t find interesting, informative and valuable.”*

—Bill Strecker, Hertz Alumni 1970

*“The Symposium was truly mind boggling and stimulating in its breadth. At what other conference could I learn about the cutting edge research of a computer scientist, a plasma physicist and an organic chemist.”*

—Jessica Chuang, Hertz Fellow, Stanford

## Highlights of 2005 Symposium

*Catalyzing the Future*

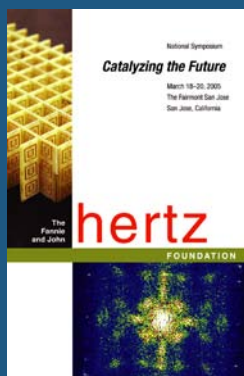
From Computer Science to Plasma Physics, science and technology of the future were the buzz as over 250 participants dialogued about future challenges and potential solutions to some of the nation’s most critical problems.

The first symposium’s speakers were terrific—e.g., Larry Page from Google, Dr. Steven Chu and Professor Douglas Osheroff, Nobelists from LBL and Stanford respectively, Dr. LeRoy Hood, Dr. John S. Foster, Jr., Dr. J. Doyne Farmer, Professor Alex Filippenko, Mr. Peter Schwartz, Professor Neil J. Smelser, Dr. Denice Denton and many others. The in-school and alumni Fellows’ posters were top quality. We needed more time to talk to each other since everyone is doing such interesting research.

In addition to the stimulating discussions in sessions, over meals, or at late night gab fests, participants networked with one another and found helpful connections for their research. All agreed that the event enriched the Fellowship program for our in-school Fellows while providing much valued time for the Hertz alumni to reconnect with one another.



**Front Row** (left to right): Dr. Jill Foley, Princeton, Physics; Dr. Wendy Cieslak, Deputy Director, Sandia National Laboratories; Jane Rempel, MIT, Chemical Engineering; Dr. Denice Denton, Chancellor, UC Santa Cruz; Jennifer Roberts, MIT, Electrical Engineering. **Back Row** (left to right): Jessica Chuang, Stanford, Chemistry; Laurel Larsen, Univ. of Colorado, Earth Sciences; E. Courtney Wilson, MIT, Speech and Hearing Bioscience; Kimberly Beatty, Cal Tech, Chemistry; Kathryn Todd, Stanford, Physics; Dr. Deirdre Olynic, LBNL Nanofabrication Scientist; Vanessa Lordi, Agilent Technologies, Bioinformatics Test Engineer; Lily Kim, MIT, Neuroengineering; Katie Mitchell-Koch, Univ. of Michigan, Chemistry.



## Hertz Fellow Gatherings

During the past year the Foundation hosted a number of gatherings of Hertz Fellows and Friends in Northern California, Washington DC, and Boston that were fun, stimulating, and professionally productive. We are currently planning monthly gatherings in various locations during the coming year.

### West Coast In-School Fellows

Over 30 in-school Fellows met October 28-30, 2005 at the Marconi Conference Center near Point Reyes National Seashore for scholar updates and discussions. Jay Davis was the "scientist in residence" for discussions on how the Foundation can assist the Fellows and enhance the Fellowship program.

### Boston Area Hertz Fellows Event

Organized by Steven Fantone, Amir Nashat, and Julius Lucks, twenty (10 alumni, 10 in-school) Boston Area Fellows gathered for an evening of fun and discussions on November 29, 2005. Our thanks to Polaris Venture Partners for sponsoring this event.

### Volunteers to Assist the Foundation

As the Foundation reaches out to our alumni to build a community of Friends, we need volunteers to assist with this outreach process. Your talent, time, and creativity can help us strengthen the program for in-school and alumni Hertz Fellows. Some of the ways you might assist include:

- Plan a Hertz Fellows and Friends gathering or volunteer for the 2007 Symposium.
- Help us raise money to underwrite the Symposium. Corporate and individual sponsors are needed.
- Assist with publicity regarding the Foundation with your local press or membership organizations.

If interested, please contact Susan Overman at [soverman@hertzfoundation.org](mailto:soverman@hertzfoundation.org) to become a member of our team!



West Coast in-school Fellows gathering near Point Reyes National Seashore, California.

Front Cover Images (left to right): Andrew Houck, Harvard, Split-Peak Kondo Effect; Adam E. Cohen, Stanford, Trapped Molecule of DNA.

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