

CALTECH ALUMNI ASSOCIATION



# Alumni Reunion Weekend and 67th Annual Seminar Day

MAY 13-16, 2004

04

PRELIMINARY PROGRAM

DEAR ALUMNI,

Welcome back to Caltech for the 67th annual Seminar Day and Reunion Weekend!

Seminar Day highlights some of the best of Caltech . . . its people, their research, and not least, its alumni. We hope you will find old friends, make new ones, learn amazing things about our universe and ourselves from Caltech's exciting research, and celebrate the accomplishments of our Distinguished Alumni.

We invite you also to take part in the many alumni activities planned throughout the country and the world in 2004 and 2005. What a great way to stay connected! Among them, the Caltech Alumni Association's Seventh Alumni College will take place June 18-19 at Tech featuring lectures and field trips highlighting Space Sciences and the work of the Jet Propulsion Laboratory.

As you plan for Seminar Day—and I do encourage you to plan—you will be reminded not only of Caltech but also of the work and interests of your fellow alumni. We are a very special small community, sharing an intrinsic interest in science and engineering and our Caltech experience. We benefit greatly when we connect with our fellow alumni . . . in person, by phone, or through the net. Do it! Think of Caltech alumni first when hiring or looking for creative trustworthy advice or assistance. Organize an informal Caltech gathering in your own community, perhaps featuring the work of a nearby Caltech alum. Help support Caltech admissions by representing Tech in meetings with prospective and admitted students.

To learn more about these opportunities as well as upcoming events, or to ask for help in offering an event, visit our Alumni Association website at [www.its.caltech.edu/~alumni](http://www.its.caltech.edu/~alumni) or contact the Alumni Association staff at 626/395-6592.

I look forward to seeing you at Seminar Day! Welcome!

Tom Tisch, BS '61 Eng

CAA President

[tomtisch@alumni.caltech.edu](mailto:tomtisch@alumni.caltech.edu)

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## REGISTRATION INFORMATION

This mailing includes your official registration form. Reunion/Seminar Day registration is simple and easy. Review the schedule, determine which events you will be attending, and fill out the enclosed registration form. You can mail or fax your registration to us. See your registration form for complete instructions. Take advantage of an early-bird registration fee reduction for Seminar Day when registration is postmarked or faxed by Friday, April 23. Regular fees will be accepted for registrations postmarked April 24 or later. Be sure to indicate attendance at all complimentary events. You may pick up your registration packet, including name tags, event tickets, and other materials for the entire weekend, during registration for the first event in which you are participating. **Reservation deadline is Monday, May 3, 2004.**

**Please note:** Same-day registration will be available for Seminar Day ONLY on Saturday, May 15, 2004, Beckman Mall (Registration Tent). The registration fee will be \$80.00 per person.

### REFUND POLICY

To receive a refund, written notice of your cancellation must be postmarked by Monday, May 3, 2004. No refunds can be given for verbal cancellations or for cancellations postmarked after May 3.

### For further information contact:

Caltech Alumni Association  
Mail Stop 1-97  
Pasadena, CA 91125  
626/395-8364  
626/395-6592  
Fax 626/795-8736  
E-mail: reunions@alumni.caltech.edu

Visit us on the Web at:  
[www.its.caltech.edu/~alumni](http://www.its.caltech.edu/~alumni)

**ACCOMMODATIONS**

Hotel space is limited and goes fast! Below is a listing of area hotels offering a Caltech rate. Please book your room as early as possible. To be eligible for their special rates, please make your reservations directly with them and mention that you are part of the Caltech Reunion Group.

Spaces are limited and reservations must be made by **Friday, April 23, 2004.**

**Courtyard by Marriott**

180 North Fair Oaks Avenue  
Pasadena, CA 91103  
626/403-7600  
\$84.00 single/double occupancy

**Four Points by Sheraton Monrovia-Pasadena**

700 West Huntington Drive  
Monrovia, CA 91016  
800/996-3426  
\$99.00 single/\$109.00 double  
Full Breakfast Included

**Saga Motel**

1633 East Colorado Boulevard  
Pasadena, CA 91101  
800/793-7242  
\$65.00 single  
\$75.00 double

**The Ritz-Carlton Huntington Hotel**

1401 South Oak Knoll Avenue  
Pasadena, CA 91106  
626/568-0715  
\$165.00 single/double occupancy  
Limited number of rooms at this price, based on availability

**The Westin Pasadena**

191 North Los Robles Avenue  
Pasadena, CA 91101  
626/792-2727  
\$129.00 single/double occupancy

## WEEKEND ATTIRE

Most events during Reunion Weekend are casual. We suggest that you wear comfortable clothing and a good pair of walking shoes. Class reunion dinners are traditionally evening attire; a jacket for gentlemen is recommended, but not required.

## MESSAGE CENTER

If you need to be reached during the Weekend, callers may leave messages at 626/395-6592 on Thursday and Friday only. They will be posted on a bulletin board at the Caltech Alumni House. You are able to leave handwritten messages for other reunion-goers on a bulletin board at the Caltech Alumni House.

## PARKING ON CAMPUS

Street parking on campus is difficult to find. On Thursday and Friday, May 13 and 14, parking will be available on Hill Avenue between California Boulevard and Del Mar Boulevard and on Holliston Avenue between San Pasqual Street and Del Mar Boulevard. Disregard posted signs—special arrangements have been made with the City of Pasadena. Parking will also be available May 15 in the Institute structures on Holliston Avenue and Wilson Avenue, and in Tournament Park (entrance on California Boulevard).

## CALTECH BOOKSTORE

The Caltech Bookstore invites you to come in during your visit to the campus on Seminar Day Weekend 2004. We will be open on Saturday, May 15 from 11:00 am to 6:00 p.m. In the event that you arrive early, we will be open on Thursday and Friday, May 13 and 14 from 8:30 a.m. to 6:00 p.m. We will be extending to all Alumni Association members a 15 percent discount on all merchandise with the exception of textbooks, tickets, and film processing during your visit. Come in and browse our ever expanding reference and technical book title base. The Caltech author section continues to be a hallmark and a monument to our faculty and to the world of science. We feature books on the historical architecture of Caltech as well as many outstanding biographies from the world of science including Nobel laureate Dr. Ahmed Zewail's *Voyage through Time: Walks of Life*

to the Nobel Prize. The ever popular, *Legends of Caltech* and *More Legends of Caltech* are always great mementos and we especially celebrate Caltech's four current Nobel laureates.

We are now joined with the JPL Store located at the JPL Laboratory site. We are proud of the space mission commemorative merchandise that can be viewed and purchased on-line at [www.thejplstore.caltech.edu](http://www.thejplstore.caltech.edu) (Alumni discount not applicable at JPL). Please visit us this weekend and throughout the year by phone, 626/395-6161 or 800/514-2665, or on-line @ [www.bookstore.caltech.edu](http://www.bookstore.caltech.edu)

## CONVENIENCE STORE

The C-Store is located next to Chandler Dining Hall and has a wide variety of items available on a daily basis. For more information phone 626/395-8012.

Monday – Friday	9:30 a.m. – midnight
Saturday & Sunday	10:30 a.m. – 11:00 p.m.

## ATHLETIC FACILITIES

The Braun Athletic Center, completed in 1993, includes a gymnasium, a multi-purpose room, six squash/racquetball courts, a weight room with an aerobic fitness corridor, and mens' and womens' locker rooms. Other facilities include two 25-yard swimming pools, a six-lane track, eight tennis courts, and two playing fields. Self-guided tours of the facility will be available for alumni during operating hours. For further information, please stop by the Braun reception desk where staff will be on hand to answer questions throughout the day. Nametag ID is required to enter the facilities.

### Braun Athletic Center Facilities

Monday – Thursday	6:00 a.m. – midnight
Friday	6:00 a.m. – 10:00 p.m.
Saturday & Sunday	8:00 a.m. – 7:30 p.m.

### Braun and Alumni Pools

Monday – Friday	6:00 a.m. – 9:00 a.m. & 11:00 a.m. – 7:00 p.m.
Saturday & Sunday	12:00 – 6:00 p.m.



## OTHER ACTIVITIES ON CAMPUS

### CALTECH WOMEN'S CENTER 10TH ANNIVERSARY LUNCHEON

Friday, May 14, 12:00 — 2:00 p.m.  
Steele House Garden  
355 S. Holliston Ave.

Please join us to honor the rich history of women at Caltech as we celebrate our 10th anniversary. This will be a great opportunity to reconnect with old friends, meet students, and hear from past and present women leaders at Caltech.

For more information, or to RSVP, please contact Candace Rypisi at 626/395-3221 or [candacer@caltech.edu](mailto:candacer@caltech.edu).

### JPL OPEN HOUSE

The Jet Propulsion Laboratory will once again open its doors to the public during its annual Open House to be held on Saturday and Sunday, May 15 and 16, from 9 a.m. to 5 p.m. both days. This popular event will celebrate JPL's accomplishments with exhibits and demonstrations about the Laboratory's ongoing research and space exploration. Many of the Lab's scientists and engineers will be on hand to answer questions about how spacecraft are sent to other planets, how scientists utilize space technologies to explore Earth and how researchers are now searching for planets beyond the solar system. Visitors will see exhibits, displays, demonstrations and presentations about new technologies, solar system exploration, spacecraft communication and much more. The Open House is a fun and educational experience for children too, with special hands-on activities designed for kids. Food and beverages will be available, along with space souvenirs and NASA and JPL merchandise. Admission and parking are absolutely free, so make plans now to visit JPL and experience the thrill of space exploration!

For more information, please call 818/354-0112 or visit [www.jpl.nasa.gov/openhouse](http://www.jpl.nasa.gov/openhouse).

## CALTECH Y ALUMNI BRUNCH

### **Open to all!**

Sunday, May 16

11:00 a.m. – 1:00 p.m.

Center for Student Services Building

414 South Holliston Avenue

Have you ever attended a Y Hike or Decompression, been part of the Y ExComm, or been involved with any Y activity? This event is open to all alums who have fond memories of the Y. Stop by the Y to enjoy good food, chat with friends, and check out our photos of your days as a student.

For more information, please contact Athena Castro at 626/395-6163 or [athena@caltech.edu](mailto:athena@caltech.edu).

## REUNION ACTIVITIES

Whether you graduated from Caltech one or 65 years ago, you won't want to miss the reunion celebrations! Alumni celebrating their 1st, 5th, 10th, 15th, 20th, 25th, 30th, 35th, 40th, 45th, 50th, 55th, 60th, and 65th year reunions (as well as any interested alumni from surrounding years) are all invited. The weekend promises traditions, information, fun, frivolity, and nostalgia. We have tried to locate and invite everyone from the reunion years, but please help us make this a great celebration by contacting your friends and making sure that they'll all be there.

A special thanks to our 2004 Reunion Committees for all the hard work and time.

To find out who's coming to a reunion, go online to [www.its.caltech.edu/~alumni/reunions.htm](http://www.its.caltech.edu/~alumni/reunions.htm)

The list of registrants will be updated every Friday throughout the Reunion registration period.

### REUNION CLASSES

**Class of 1939** — 65th Reunion

**Class of 1944** — 60th Reunion

Event Chair: Paul Winter/Harry Sigworth

Gift Chair: John Rempel

**Class of 1949** — 55th Reunion

Event Chair: Fred Selleck

**Class of 1954** — 50th Reunion

Event Chair: Sam Vodopia/John Wall

Gift Chair: Reinaldo Gutierrez

**Class of 1959** — 45th Reunion

Event Chair: Clint Frasier

Gift Chair: Richard Montgomery

**Class of 1964** — 40th Reunion

**Class of 1969** — 35th Reunion

Event Chair: Lonnie Martin

**Class of 1974** — 30th Reunion

Event Chair: David Peisner

Gift Chair: David Peisner

**Class of 1979** — 25th Reunion

**Class of 1984** — 20th Reunion

Event Chair: Daniela Bonafede-Chhabra

**Class of 1989** — 15th Reunion

Gift Chair: Cameron Campbell

**Class of 1994** — 10th Reunion

**Class of 1999** — 5th Reunion

Event Chair: Autumn Looijen/Erik Streed

**Class of 2003** — 1st Reunion

## SCHEDULE OF EVENTS

THURSDAY, MAY 13, 2004

### Class of 1954

Registration/Lunch 11:00 a.m.—1:30 p.m.

Alumni House  
345 South Hill Avenue

Estate Tour of The Huntington 2:00 p.m.

(Tour departs from Alumni House at 1:30 p.m.)

1151 Oxford Road  
San Marino

### Classes of 1939, 1944, 1949, 1954

President's Reception 6:00 —7:15 p.m.

Hosted by Dr. David Baltimore and Dr. Alice Huang  
President's Residence, 415 South Hill Avenue

Dinner & Dancing 7:30 p.m.

Athenaeum  
551 South Hill Avenue  
Guest Speaker, Dr. Judith R. Goodstein  
University Archivist and Faculty Associate in History

FRIDAY, MAY 14, 2004

### Classes of 1939, 1944, 1949, 1954

Continental Breakfast 8:00 — 9:00 a.m.

Alumni House  
345 South Hill Avenue

### Classes of 1939, 1944, 1949, 1954

Campus Architectural Tour 9:30 —11:00 a.m.

(Tour departs from Alumni House at 9:00 a.m.)

### Illustrated Lecture

First stop will be 155 Arms where Romy Wyllie, Chairman of the Caltech Architectural Tour Service and author of *Caltech's Architectural Heritage: From Spanish Tile to Modern Stone* will present a 45-minute illustrated lecture outlining the history of the campus architecture and comparing its decorative motifs with examples found in world architecture.

### Walking Tour

Members of the Caltech Architectural Tour Service (CATS) will give 45 minute walking tours of the campus. CATS is a special service of the Caltech Women's Club. Members are all volunteers who are thoroughly educated in the history of the campus architecture and are eager to show visitors some of Caltech's hidden treasures.

### Class of 1959

Early Arrival Estate Tour of The Huntington 10:30 a.m.

(Participants meet at The Huntington)

1151 Oxford Road

San Marino

### Half Century Club — Class of 1954

Half Century Club members and guests

Reception Athenaeum 12:00 p.m.

Lunch Athenaeum 12:30 p.m.

**Class of 1954** — Group photo immediately following luncheon, on west steps of Athenaeum

### Classes of 1959 and 1974

Registration 3:00 — 3:30 p.m.

Alumni House

### Class of 1959

Campus Architectural Tour 3:00 — 4:30 p.m.

(Tour departs from Alumni House at 3:00 p.m.)

(Walking tour only)

### Walking Tour

Members of the Caltech Architectural Tour Service (CATS) will give 45 minute walking tours of the campus. CATS is a special service of the Caltech Women's Club. Members are all volunteers who are thoroughly educated in the history of the campus architecture and are eager to show visitors some of Caltech's hidden treasures.

### Class of 1974

Nostalgia Session 3:30 p.m.

22 Gates

In keeping with our Class's long standing tradition be sure to join us for an afternoon of reminiscing.

## **Class of 1954**

Cocktails & Dinner

6:00 p.m.

Alumni House

345 S. Hill

## **Classes of 1959, 1964, 1969, 1974, 1979, 1984, 1989, 1994, 1999, 2003**

Registration

6:30 p.m.

Athenaeum

Alumni Fund's Reunion Reception

6:30 – 7:30 p.m.

Athenaeum

(All Reunion Classes invited)

Hosted wine and beer bar and hors d'oeuvres

Gift announcement and donor recognition

Dinner & Dancing

7:30 p.m.

Athenaeum

## **Student Chamber Music Concert**

8:00 p.m.

Ramo Auditorium

The first of two concerts, each with a different program, to commemorate the 25th anniversary of Caltech's student chamber music program. Chamber Music alumni will be recognized and may even participate in the program. Students will perform a wide variety of music for small ensembles. The second concert will be Sunday at 3:30 p.m. This is a free concert; no tickets or reservations are required.

## **SATURDAY, MAY 15, 2004**

### **First-Ever Reunion Dinner Of Caltech's Varsity Football Team!!**

(Vintage 1964 to 1970)

Avery Center

6:00 p.m.

This is the team of guys who played their home games in the Rose Bowl. And the team that broke a 35+ game losing streak to beat UC San Diego in 1968.....and to give the Pasadena Police Department a bonfire to remember at Lake & California. UCSD promptly ended its football program. We decided to get together since we've not seen each other for 35+ years. Coaches Tom Gutman and Dean Bond are committed to attend, along with 25 players so far. If you played on any of the 1964 to 1970 teams, you won't want to miss this special evening.

## Alumni Barbecue

6:00 p.m.

Beckman Mall (Reunion Tent)

This informal BBQ will offer the opportunity to meet and talk with former classmates and current students. Bring the family. Includes BBQ ribs, chicken, and all the fixings. We encourage you to join us for the perfect ending to Alumni Reunion Weekend 2004.

**SUNDAY, MAY 16, 2003**

## Class of 1954

Brunch

10:00 a.m. – 2:00 p.m.

Home of John and Joyce Wall  
5954 Philip Avenue  
Malibu

## Chamber Music Concert

3:30 p.m.

Ramo Auditorium

The second of two concerts, each with a different program, to commemorate the 25th anniversary of Caltech's student chamber music program. Chamber Music alumni will be recognized and may even participate in the program. Students will perform a wide variety of music for small ensembles. This is a free concert; no tickets or reservations are required.

# Caltech Alumni Fund

The Caltech Alumni Fund wishes to **THANK** all reunion donors who have contributed to their Reunion Gift.

- Reunion Gifts are contributions to the Alumni Fund that commemorate your class year and the anniversary of your graduation.
- Alumni Fund gifts in your Reunion year help to provide much needed flexible spending dollars.
- Reunion gifts made by your class will make an impact immediately by providing much needed unrestricted and current use funds.

**Please join us at the Alumni Fund's Reunion Reception on May 14 when we announce the total gift amount and recognize our donors.**

- Raise a glass to commemorate your reunion
- Enjoy social time with friends
- Help us recognize all who have contributed to the Reunion Gift
- Find out how much your class raised towards the Reunion Gift
- Hosted wine and beer bar and hors d'oeuvres

For information on making a gift or volunteering for the Alumni Fund please call 626/395-6323 or visit [giving.caltech.edu/AF/index.html](http://giving.caltech.edu/AF/index.html)

## SEMINAR DAY SCHEDULE OF EVENTS

SATURDAY, MAY 15, 2004

- 8:15 a.m. Registration, Beckman Mall (Registration Tent)  
Coffee and doughnuts, Gates Annex
- 9:00 a.m. Session I, Campuswide
- 10:00 a.m. Session II, Campuswide
- 11:00 a.m. Session III, Beckman Auditorium  
Distinguished Alumni Awards  
Milton Blouke Carus BS '49 EE  
Narendra Kumar Gupta MS '70 AE  
Kenneth Irwin Kellermann PhD '63 CHE  
Robert Paul Kirshner PhD '75 AY  
Gerhard Hans Parker BS '65 ENG, MS '66 EE, PhD '70 EE  
Henry Gerard Schwartz, Jr. PhD '66 CE  
General Session  
Paul Beattie MacCready Jr., MS '48 PH, PhD '52 AE
- 12:30 p.m. Box Lunch Distribution, Beckman Mall (Registration Tent)  
Decade Rendezvous, Gates Annex  
Exhibits and Special Programs, Campuswide
- 2:30 p.m. Session IV, Campuswide
- 3:30 p.m. Session V, Campuswide
- 4:30 p.m. Session VI, Campuswide
- 5:15 p.m. Wine and Cheese Reception, Gates Annex
- 6:00 p.m. Alumni Barbecue, Beckman Mall (Reunion Tent)



**“Frontiers of Aeronautics and Fluid Mechanics”**

**Paul Beattie MacCready Jr., PhD '52,** is internationally renowned for taking innovative and alternative-energy technology to, quite literally, new heights with such creations as the Gossamer Condor, Gossamer Albatross, and Gossamer Penguin.

A model-airplane enthusiast from childhood, MacCready made his first solo-pilot flight at 16 and flew in the Navy flight training program in World War II. He subsequently became a keen glider pilot, winning the sport's International Championship for the United States in 1956.

In 1971, he founded AeroVironment, Inc., which provides services, developments, and products in the fields of alternative energy, power electronics, and energy-efficient land, air, and water vehicles. Six years later, he was dubbed the “father of human-powered flight” when his Gossamer Condor made the first sustained, controlled flight by a heavier-than-air craft powered solely by its pilot's muscles. Other pioneering aircraft developed by AeroVironment include the Gossamer Albatross, the first craft to achieve human-powered flight across the English Channel; the solar-powered Gossamer Penguin, Solar Challenger, Pathfinder, and Helios; and the Pointer surveillance plane.

AeroVironment became an innovator in land-vehicle technology with its environmentally friendly, solar-powered GM Sunraycer, which in 1987 bested 23 other contestants in a race across Australia. MacCready's company also provided much of the R&D for General Motors' battery-powered sports car, Impact, which subsequently entered the GM production line as EV-1.

Himself a Caltech Distinguished Alumnus (1978), MacCready has received widespread recognition for his work, including the Inventor of the Year Award from the Association for the Advancement of Invention and Innovation (1981); the Guggenheim Medal (1987); the Chrysler Award for Innovation in Design (1993); and NASA's Public Service Grand Achievement Award. His many professional affiliations include membership in the National Academy of Engineering, the American Academy of Arts and Sciences, and the American Philosophical Society. He was named one of “the 100 most influential people of the century” by Time magazine in its 1999 “The Century's Greatest Minds” issue.

## ABSTRACTS OF SEMINAR LECTURES

*listed alphabetically by speaker*

### FROM THE BOTTOM OF THE OCEAN TO BORNEO: TRYING TO UNDERSTAND THE MECHANISMS BEHIND RAPID CLIMATE CHANGES IN THE PAST

9:00 to 9:45 a.m.

Chair: Ed Bryan

3:30 to 4:15 p.m.

Chair: Sean Upchurch

**Jess F. Adkins**, *Assistant Professor of Geochemistry and Global Environmental Science*

The problem of whether there is human-induced climate change or not needs to be viewed in the light of natural variations in the ocean/atmosphere system. I will use the last few glacial cycles as a reference point for what the climate system has been documented to do, and why it might do it. We will discuss the recent use of several amazing new archives of past climate change, such as ice cores, ocean sediments, and cave deposits. I will also show the “rigors” of doing science in the field, via photos from our two recent trips to the North Atlantic with the submersible Alvin and to Borneo to collect stalagmites from caves.

### LISTENING TO AND MANIPULATING CELL CONVERSATIONS

9:00 to 9:45 a.m.

Chair: Phoebe Dea

2:30 to 3:15 p.m.

Chair: Don Webb

**Anand R. Asthagiri**, *Assistant Professor of Chemical Engineering*

Cells are constantly in dialogue with their environment. Extracellular cues tell cells to perform specific functions: multiply to heal a wound or move to a target site of infection. Cells make these decisions using a complex network of intracellular reactions. And events that alter this decision-making network result in severe pathologies such as cancer, wherein cells multiply or move even without proper environmental cues. Using a combination of quantitative molecular cell biology and engineering analysis and computation, we seek to understand the timing, location, and intensity of these intracellular signals, so that we can understand the cellular language and ultimately design therapies that straighten out miscommunications.

## 3-MANIFOLDS, TESSELLATIONS, AND THE MILLION DOLLAR QUESTION

10:00 to 10:45 a.m.  
4:30 to 5:15 p.m.

Chair: Le Val Lund  
Chair: Michael Krieger

**Danny Calegari**, *Associate Professor of Mathematics*

In 1904, Henri Poincaré introduced a powerful and far-reaching tool to mathematics: a tool that associates to any geometric space, however flabby, a rigid, crystalline object called the *fundamental group*. He conjectured that this group could be used to completely characterize the simplest closed 3-manifold, namely the 3-dimensional sphere. This conjecture became known as the *Poincaré Conjecture*, and is widely considered the most important problem in topology.

Almost a century later, Grigori Perelman has recently announced a proof of the Poincaré Conjecture. His solution demonstrates profound connections between the theory of 3-manifolds and many other areas of science, including number theory, crystallography, and general relativity. We will discuss the history of the problem, and some of the beautiful ideas that have been developed in pursuit of its solution.

## FUSION OF BIOLOGICAL MEMBRANES: HIV INFECTION AND MITOCHONDRIAL FUNCTION

9:00 to 9:45 a.m.  
2:30 to 3:15 p.m.

Chair: Bob Gershman  
Chair: Jean Wang

**David C. Chan**, *Assistant Professor of Biology and Bren Scholar*

The fusion of biological membranes underlies many critical cell biological events. I will discuss two such events that are particularly interesting—the infection of human cells by the human immunodeficiency virus (HIV), and the fusion of mitochondria, organelles that provide energy for cells. In each case, a better understanding of the membrane fusion mechanism promises to yield new treatments for disease.

## PULVERIZING KIDNEY STONES WITH BUBBLES

9:00 to 9:45 a.m.  
3:30 to 4:15 p.m.

Chair: Louise Wannier  
Chair: Winsor Brown

**Timothy E. Colonius**, *Associate Professor of Mechanical Engineering*

In lithotripsy, focused shockwaves are fired into the kidney in order to pulverize kidney stones. We numerically simulate the shock focusing and clouds of cavitation bubbles that are produced by the lithotripter. There is mounting evidence that the collapse of such bubbles contributes to stone fragmentation and tissue injury, and our simulations help explain clinical observations regarding efficacy and injury as a function of lithotripter design and operational parameters.

8:15 a.m.

**REGISTRATION—BECKMAN MALL (REGISTRATION TENT)**

**Session I**

9:00 a.m.

From the Bottom of  
the Ocean to Borneo

Listening to and  
Manipulating Cell  
Conversations

Fusion of Biological  
Membranes: HIV  
Infection and  
Mitochondrial Function

Pulverizing Kidney  
Stones with Bubbles

Language and  
Innateness

Mars Exploration  
Rover Science:  
Robotic Field Geology

The Galaxy Evolution  
Explorer—Mapping  
the History of Star  
Formation in The  
Universe

J. Adkins

A. Asthagiri

D. Chan

T. Colomius

F. Cowie

J. Crisp

C. Martin

**Session II**

10:00 a.m.

3-Manifolds,  
Tessellations, and the  
Million Dollar Question

Nanotechnology,  
Biology, and Medicine

Clean Water: The Oil  
of the 21st Century

The 2003 Special  
Election to Recall  
Gray Davis as  
Governor of California

Storms that Swallow  
an Entire Planet:  
Global Dust Storms  
on Mars

The Spitzer  
Space Telescope—  
NASA's Infrared  
Great Observatory

Caltech's

Architectural Heritage

D. Caligari

J. Heath

J. Herring

D. Kiewiet

M. Richardson

M. Werner

R. Wyllie

**Session III**

11:00 a.m.

BECKMAN AUDITORIUM

MASTER OF CEREMONIES, Dr. Ronald L. Richmond

PRESIDENT'S WELCOME, Mr. Thomas Tisch

DISTINGUISHED ALUMNI AWARDS, Dr. David Baltimore

GENERAL SESSION, Dr. Paul Beattie MacCready, Jr.

12:30 – 2:30 p.m. Lunch – Beckman Mall (Registration Tent)

<b>Session IV</b> 2:30 p.m.	Listening to and Manipulating Cell Conversations A. Asthagiri	Fusion of Biological Membranes: HIV Infection and Mitochondrial Function D. Chan	Language and Innateness F. Cowie	Gene Networks: Simple Circuits for Complex Cells M. Elowitz	Cancerous Stem Cells: Insights into the Origins of Human Brain Tumors H. Hemmati	Clean Water: The Oil of the 21st Century J. Hering	Storms that Swallow an Entire Planet: Global Dust Storms on Mars M. Richardson
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<b>Session V</b> 3:30 p.m.	From the Bottom of the Ocean to Borneo J. Adkins	Pulverizing Kidney Stones with Bubbles T. Colonius	Mars Exploration Rover Science: Robotic Field Geology J. Crisp	Stalking the Exciton Condensate: Exotic Behavior of Electrons under Extreme Conditions M. Kellogg	The Galaxy Evolution Explorer—Mapping the History of Star Formation in The Universe C. Martin	The Huntington and Caltech: A Century of Scholarly Friendship R. Ritchie	SURF Student Speakers
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<b>Session VI</b> 4:30 p.m.	3-Manifolds, Tessellations, and the Million Dollar Question D. Caligari	Gene Networks: Simple Circuits for Complex Cells M. Elowitz	Nanotechnology, Biology, and Medicine J. Heath	The 2003 Special Election to Recall Gray Davis as Governor of California D. Kiewiet	The Spitzer Space Telescope—NASA's Infrared Great Observatory T. Soifer		
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## ABSTRACTS OF SEMINAR LECTURES

*listed alphabetically by speaker*

### LANGUAGE AND INNATENESS

9:00 to 9:45 a.m.

Chair: Dave Bacon

2:30 to 3:15 p.m.

Chair: Bob Burket

**Fiona Cowie**, *Associate Professor of Philosophy*

Many cognitive scientists contend that we can learn language only because we innately know a “Universal Grammar.” However, new information about language and its implementation in the brain shows that the complex interactions between experience and our genetic endowment are grossly oversimplified when characterized as the “triggering” of an “innate UG” or the “shaping” of an “innate language organ.” Innateness is not a helpful notion in explaining how language is acquired.

### MARS EXPLORATION ROVER SCIENCE: ROBOTIC FIELD GEOLOGY

9:00 to 9:45 a.m.

Chair: Jon Hamkins

3:30 to 4:15 p.m.

Chair: Karina Edmonds

**Dr. Joy A. Crisp**, *Project Scientist, Mars Exploration Rover Mission*

This ambitious mission landed rovers at two different locations on Mars on January 3 and 24. The twin rovers are equipped as “field geologists” and are being used to look for evidence of past water activity and to assess whether past environments on Mars were favorable for life. Each rover was designed to spend at least 90 days exploring and characterizing the diversity of surface materials in its local area.

### GENE NETWORKS: SIMPLE CIRCUITS FOR COMPLEX CELLS

2:30 to 3:15 p.m.

Chair: Bob Gershman

4:30 to 5:15 p.m.

Chair: Jean Wang

**Michael Elowitz**, *Assistant Professor of Biology and Applied Physics and Bren Scholar*

Living cells show remarkable behaviors—they make decisions, keep track of time, and communicate with one another. These abilities depend on sophisticated genetic “circuits” composed of genes and proteins. Recently it has become possible to design and build simple genetic circuits of our own—clocks, logic gates, and so forth. These synthetic circuits confer new behaviors on living cells. They also provoke fundamental questions about how cells operate reliably despite the unpredictability of their molecular components.

## NANOTECHNOLOGY, BIOLOGY, AND MEDICINE

10:00 to 10:45 a.m.

Chair: Don Webb

4:30 to 5:15 p.m.

Chair: Phoebe Dea

**James R. Heath**, *Elizabeth W. Gilloon Professor and Professor of Chemistry*

With the sequencing of the human genome effectively completed a few years ago, biology entered into what is now called the “post-genomic” era, with the implication that knowledge of the human genome would fundamentally change the science and practice of biology. As a consequence, biology and medicine stand at perhaps the major inflection point in their history. The Human Genome Project has catalyzed the emergence of two new approaches to biology and medicine: systems biology and predictive and preventive medicine. The tools of systems biology have begun to reveal a rich body of information on human disease that has the potential to radically change medical diagnostics and therapeutics. Unfortunately, those tools are far too awkward, slow, and expensive to significantly impact clinical medicine. Caltech scientists have teamed together with scientists from the Institute for Systems Biology in Seattle, and scientists from the UCLA medical school, to develop a suite of nanotechnologies designed to bridge this gap. I will talk about this project and place it within the context of particular diseases, such as breast cancer.

## CLEAN WATER: THE OIL OF THE 21ST CENTURY

10:00 to 10:45 a.m.

Chair: Winsor Brown

2:30 to 3:15 p.m.

Chair: Louise Wannier

**Janet G. Hering**, *Professor of Environmental Science and Engineering and Executive Officer for the Keck Laboratories*

Water is a basic necessity of life. In the developing world, lack of access to safe drinking water is a major cause of death in children. In the arid southwestern United States, water resources are coming under increasing pressure as a result of population growth and the competing needs of cities, farms, and sensitive ecosystems. Factors affecting water quality, technologies for improving it, and possible strategies to meet future water supply needs will be examined.

## THE 2003 SPECIAL ELECTION TO RECALL GRAY DAVIS AS GOVERNOR OF CALIFORNIA

10:00 to 10:45 a.m.

Chair: Bob Burket

4:30 to 5:15 p.m.

Chair: Dave Bacon

**D. Roderick Kiewiet**, *Professor of Political Science*

The October 7, 2003, recall was an unusual election in many ways. It used a two-part voting procedure, there were a vast number of candidates, and the number of potential voting strategies was quite large. Mike Alvarez and Rod Kiewiet conducted a telephone survey of 1,500 California voters to gather data concerning their choices in this election. The information gained in this survey and related research efforts is extremely interesting and somewhat disturbing.

## THE GALAXY EVOLUTION EXPLORER—MAPPING THE HISTORY OF STAR FORMATION IN THE UNIVERSE

9:00 to 9:45 a.m.

Chair: Michael Krieger

3:30 to 4:15 p.m.

Chair: Le Val Lund

### **D. Christopher Martin**, *Professor of Physics*

The Galaxy Evolution Explorer (GALEX) is a NASA Small Explorer mission designed to map the history of star formation in the universe over 80 percent of cosmic time. Launched April 28, 2003, it is performing imaging and spectroscopic surveys in the ultraviolet band. Ultraviolet light reveals hot, massive stars that die shortly after they are formed. UV light therefore chronicles recent episodes of star formation in galaxies. The history of star formation in the universe is also the history of heavy-element formation, and a fundamental benchmark for our understanding of cosmic history and the formation and evolution of galaxies.

## STORMS THAT SWALLOW AN ENTIRE PLANET: GLOBAL DUST STORMS ON MARS

10:00 to 10:45 a.m.

Chair: Sean Upchurch

2:30 to 3:15 p.m.

Chair: Ed Bryan

### **Mark I. Richardson**, *Assistant Professor of Planetary Science*

Martian global dust storms are the most dramatic planetary weather events in the solar system. On timescales of a few weeks, they can enshroud the planet in a haze so thick that only the peaks of the highest mountains can be seen from orbit, and change global mean air temperatures by tens of degrees Kelvin. In 2001, a global dust storm developed under the watchful gaze of the Mars Global Surveyor spacecraft, providing a data set that is by far the best documentation of storm initiation and evolution ever assembled. At the same time, our group at Caltech has been able to simulate global dust storms in a three-dimensional climate model for the first time. In combination, the new data and modeling capabilities hold the promise of major progress in understanding the solar system's most spectacular weather.

## THE HUNTINGTON AND CALTECH: A CENTURY OF SCHOLARLY FRIENDSHIP

3:30 to 4:15 p.m.

Chair: Michael Krieger

### **Robert C. Ritchie**, *Director of Research, Huntington Library*

The Huntington Library and Caltech have been closely intertwined from the beginning. George Ellery Hale was one of the original trustees selected by Henry Huntington to begin transforming his private collections into a public institution. Hale's advice was critical in shaping the future Huntington, and after him Millikan, DuBridge, and others associated with Caltech also served as Huntington trustees. The institutions' close ties continue today in a different form. This talk will review highlights of their long and beneficial relationship.



## THE SPITZER SPACE TELESCOPE—NASA’S INFRARED GREAT OBSERVATORY

4:30 to 5:15 p.m.

Chair: Jon Hamkins

**B. Thomas Soifer**, *Professor of Physics and Director of the Spitzer Science Center*

The Spitzer Space Telescope, the infrared component of NASA’s Great Observatories, was launched on August 25, 2003. Spitzer has opened the infrared wavelength regime to exploration with enormous gains in sensitivity over previous missions, and has already made exciting discoveries in subjects as varied as star formation and cosmology. The mission operations are conducted at JPL, and the science operations are conducted at the Spitzer Science Center on the Caltech campus. Operations have proceeded flawlessly, and the early science has been nothing less than spectacular. In this talk we will describe the innovative technologies that have made Spitzer so successful, and will discuss some of the early scientific results from the mission.

## THE SPITZER SPACE TELESCOPE—NASA’S INFRARED GREAT OBSERVATORY

10:00 to 10:45 a.m.

Chair: Karina Edmonds

**Michael Werner**, *Spitzer Project Scientist*

The Spitzer Space Telescope, the infrared component of NASA’s Great Observatories, was launched on August 25, 2003. Spitzer has opened the infrared wavelength regime to exploration with enormous gains in sensitivity over previous missions, and has already made exciting discoveries in subjects as varied as star formation and cosmology. The mission operations are conducted at JPL, and the science operations are conducted at the Spitzer Science Center on the Caltech campus. Operations have proceeded flawlessly, and the early science has been nothing less than spectacular. In this talk we will describe the innovative technologies that have made Spitzer so successful, and will discuss some of the early scientific results from the mission.

## CALTECH’S ARCHITECTURAL HERITAGE

10:00 to 10:45 a.m.

Chair: Debra Dison Hall

**Romy Wyllie**, *Author, Caltech’s Architectural Heritage: From Spanish Tile to Modern Stone*

“A University’s campus—its buildings, its landscaping, its style—embody its history, its aspirations, and its relation to the surrounding community” (Harold Brown, Caltech President 1969–1977). This illustrated lecture outlines the history of Caltech’s physical environment from its beginnings as Throop University to the new buildings of the North Campus. Bertram Goodhue’s original master plan with its “shaded portales, sheltering walls and Persian pools” set the tone for a campus, which became a microcosm of architectural styles.

The Everhart Lecture Series (formerly known as the Distinguished Graduate Student Lecture Series) was created as a forum to encourage interdisciplinary interaction among graduate students, postdoctoral scholars, and faculty. Each year, graduate students are recognized for their exemplary presentation and research skills. They are invited to give a presentation to a general Caltech audience describing recent research developments, problems and controversies, and, of course, their own contributions to their respective fields of study.

### CANCEROUS STEM CELLS: INSIGHTS INTO THE ORIGINS OF HUMAN BRAIN TUMORS

2:30 to 3:15 p.m.

Chair: Marie Beall

**Houman D. Hemmati**, *Graduate Student, Biology*

We hypothesize that brain tumors originate from alterations in neural stem cells (NSC), which produce the cells of the brain. We have studied whether brain tumors contain NSC-like cells, and whether there are differences between NSC and tumor stem cells (TSC) that can explain the origins of brain tumors. We have found that TSC are genetically similar to NSC but that they proliferate and differentiate aberrantly. The results suggest that future brain-tumor therapies should target TSC.

### STALKING THE EXCITON CONDENSATE: EXOTIC BEHAVIOR OF ELECTRONS UNDER EXTREME CONDITIONS

3:30 to 4:15 p.m.

Chair: Marie Beall

**Melinda J. Kellogg**, *Graduate Student, Physics*

For over 40 years, scientists have sought the Bose-Einstein condensation (BEC) of excitons. BEC is responsible for many exciting effects when achieved in liquid helium (creating superfluidity), in electron pairs (creating superconductivity), and most recently in alkali atoms. But the BEC of excitons has remained elusive. In our lab we have created excitons in neighboring layers of two-dimensional electron gases. We observe superfluid-like flow of these excitons, evidence that the long-sought exciton condensation has been achieved.

We are delighted to have the winners of the Doris S. Perpall SURF Speaking Awards for Excellent Oral Presentation discussing their summer research projects. The Summer Undergraduate and Research Fellowships (SURF) program affords undergraduate students a unique opportunity to spend 10 weeks working on significant scientific and engineering problems with members of the Caltech faculty and JPL staff. These projects' results are often successful enough to be published in scientific journals. A significant fraction of Caltech undergraduates are "SURFers," and the SURF program is now an important part of the Caltech experience.

### A NEW ALGORITHM FOR EVALUATING LINE-OF-SIGHT ON DIGITAL ELEVATION MAPS

3:30 to 4:15 p.m.

Chair: Greg Holk

**Joseph E. Gonzalez**, *Sophomore, Electrical and Computer Engineering*

Currently, there are two mainstream techniques for evaluating line-of-sight (LOS) on digital elevation maps (DEMs). Both techniques may produce less accurate results than traversing a regular triangulation of a DEM, which is usually too slow for real-time simulations. We have developed a new algorithm to evaluate LOS that is as accurate as traversing a regular triangulation of the DEM and faster than the techniques currently used. Based on the trivial rejection approach commonly used in ray tracing, we have applied quadtree space partitioning to reduce the LOS evaluation problem from an  $O(n)$  search to a  $O(\log n)$  search. While this technique currently requires a data structure that is  $4/3$  the size of the DEM, preliminary findings suggest compression techniques using the structure of the tree may reduce the memory requirement below that of the original DEM without losing data.

## COMMON REGULATION OF PLURIPOTENT STEM CELL POPULATIONS

3:30 to 4:15 p.m.

Chair: Greg Holk

### **Miling Yan, Sophomore**, *Chemical Engineering*

Stem cells possess the unique ability to self-renew without differentiating. While much research has been done on stem-cell cultures both in vivo and ex vivo as well as in transplantation therapies, little is known about the actual mechanism of self-renewal that defines stem cells. Genetic studies of multiple types of human stem cells would be valuable in determining molecular pathways for proliferation and differentiation. Gene expression was examined in human embryonic stem cells (ESCs), human hematopoietic stem cells (HSCs), and human neural stem cells (NSCs). Antibody staining and FACS analysis was used to isolate the stem cells from fetal liver and brain obtained from 18- to 23-week-old abortuses. RNA isolation and subsequent RNA amplification on the HSC and NSC populations was followed by microarray analysis of transcription patterns. Microarray analysis on RNA from ESCs had previously been isolated in the Firpo Lab. Comparison of gene expression patterns found a set of commonly enriched genes among the three types of stem cells. Further experiments will be necessary to determine whether these shared genes are indeed linked to the property of self-renewal in stem cells.

**Find Your Classmates**

8:00 a.m. – 5:00 p.m. Arcade Columns (Gates Annex)

Class lists of alumni attending Seminar Day will be arranged according to undergraduate degree or first degree attained. Check to see how many of your friends are attending Seminar Day.

**Poster Exhibits**

8:00 a.m. – 5:00 p.m. Beckman Mall

Check out the posters highlighting Institute and alumni activities and student organizations on display at Beckman Mall throughout the day.

**Gift & Estate Planning Office**

8:15 – 9:00 a.m. Information Table, Beckman Mall

9:00 a.m. – 2:00 p.m. Millikan Library, 4th floor

Caltech's planned giving staff will be on hand to provide information and answer questions about wills, living trusts, and general financial planning, including charitable gift options that pay income to you for life and/or provide significant tax benefits. If you would like to make an appointment to speak with someone privately about your estate planning needs, please call 626/395-2927 to arrange a meeting for either Friday or Saturday in our new offices on the fourth floor of Millikan Library.

**The Associates Office**

8:15 – 9:00 a.m. Information Table, Beckman Mall

1:00 – 2:00 p.m. Millikan Library, 4th Floor

The Associates, founded by Henry Huntington in 1926, is an organization of friends of Caltech. Find out how you can become a member and further your support of the Institute while enjoying fellowship, programs, and trips with the Associates. If you can't drop by, call 626/395-3919 for information.

## **The Sherman Fairchild Library of Engineering and Applied Science**

9:00 a.m. – 3:00 p.m.

Tours and digital library demonstrations: 1:15 – 2:15 p.m.

(details to be posted)

This 28,000 square feet modern library, made possible by a generous gift from the Sherman Fairchild Foundation, opened in January 1997. The library's design and services foster interdisciplinary communication and the exchange of ideas. Traditional reading and study spaces, especially the inviting cathedral-ceiling reading room on the third floor, are coupled with up-to-date technology to create a productive space for Caltech faculty, students, and staff. In addition, the library features a variety of meeting areas used for teaching, tutoring, and study. This versatile and flexible setting gives the library a key role in carrying out research and education at Caltech.

## **The Beckman Room Science Museum**

10:00 a.m. – 3:00 p.m. Beckman Institute, Room 131

Four display areas and the film "Arnold O. Beckman: The Man Behind the Machines" will be on view. The Beckman Room is regularly open from noon to 1:00 p.m., Monday, Wednesday, and Friday.

## **Caltech Seismological Laboratory Exhibit Center**

11:00 a.m. – 2:00 p.m. South Mudd

Faculty, staff, and students will be available from 11:00 a.m. to 2:00 p.m. in South Mudd to provide information on equipment and display items associated with the measurement and analysis of earthquakes in Southern California. There will be two stations where visitors may receive briefings on the operation of the Southern California Seismic Network. These are along the second floor (north) hallway, and in the Media Center, Room 269. Caltech, along with the USGS, UC Berkeley, and the California Geological Survey, are coordinating their earthquake monitoring efforts under a new project, the California Integrated Seismic Network (CISN). This is enhancing seismic monitoring statewide with exciting new capabilities, including an Internet-based, real-time, ground-shaking map, called ShakeMap. We will also demonstrate the new real-time display of earthquake information, CISN Display, for emergency managers.

## **Tour of the new John W. Lucas Adaptive Wind Tunnel Laboratory in Aeronautics.**

11:00 a.m. – 3:00 p.m. Guggenheim, Room 8

The latest in wind tunnel technology has been used in the design of the new adaptive-walled wind tunnel at GALCIT (Graduate Aeronautical Laboratories California Institute of Technology). The centerpiece of the new facility is its adaptive wall working section, which will utilize a computer program to shape the upper and lower walls by driving 20 pairs of actuators. Deflection of the walls can be as much as 12 inches at the center of the working section, based on the needs of the model installed for testing. A 670 hp, 440 V induction motor with an eight-foot diameter fan having 16 variable pitch blades is installed in the tunnel circuit to control the air velocity. The Lucas AWT will provide support to student, faculty, commercial, and government research. For further information on the new facility please visit our website at [www.galcit.caltech.edu](http://www.galcit.caltech.edu).

## **Round Table Alumni Discussions**

12:00 noon Beckman Mall (Reunion Tent)

Informal “bull” sessions as students remain among the best memories of Caltech life. To recapture some of that spirit and (re-)engage in the wonderful cross-pollination and out-of-the-box dialog that at times took unanticipated turns and yielded surprising results, this year’s Seminar Day will have some lunch hour tables for discussion on topics of general interest. We’ve asked a few people to initiate and stimulate discussion around each topic but wouldn’t be surprised if, true to Caltech form... some veer off into uncharted waters!

Topics will include the following:

- 1) Stem cells/cloning/ethics controversy: How should the nation sort it out?
- 2) California: How do we fix it?
- 3) The Alumni Association: How can it serve us better?
- 4) The Honor System: Still Viable, Walking Dead, or Substitutable?  
(or “Caltech’s Honor System...How should it evolve – or should it?”)
- 5) Universal health care for all Americans: What can be done?
- 6) Future directions for Caltech: Should there be curriculum changes? Should Caltech have a professional school? What should Caltech’s role be incubating a tech community?

## Center for Advanced Computing Research

12:00 – 3:00 p.m.

Powell-Booth Laboratory for Computational Science, Room 100

(Enter through the south door of Powell-Booth)

The Center for Advanced Computing Research (CACR) was established to enable breakthroughs in computational science by

- following an applications-driven approach to computational science research,
- providing an intellectual environment that cultivates multidisciplinary collaborations,
- harnessing new technologies to create innovative large-scale computing environments, and
- conducting multidisciplinary research in these leading-edge computing facilities.

In support of these objectives, CACR installs and exploits successive generations of high-performance parallel computers, networks, data storage, and visualization systems.

## Mineral and Gem Collection

12:00 – 3:00 p.m. Foyer of Arms Laboratory

Examine the collection of minerals and gemstones displayed by the Division of Geological and Planetary Sciences. The collection contains excellent examples of North American gemstones, including benitoite, the official gemstone of the state of California. Also on display are gem minerals and stones cut from pegmatites, attractive copper minerals from Michigan and the southwest, and other interesting specimens from Europe and the Americas.

## The William D. Hacker Social Science Experimental Laboratory

12:30 – 2:30 p.m. Baxter, Room 5

Follow the signs posted to the SSEL Laboratory, in the Baxter Building. Descend stairway on the Northeast corner of the Baxter Building, to enter the SSEL Laboratory located in Room #5. The lab will be open during this time and you will be able to participate in simple experiments (which sometimes depend on the number of participants).

This facility represents the state of the art in experimental social sciences. It is dedicated to research in:

- Experimental Economics
- Experimental Game Theory



- Experimental Political Science
- Experimental Finance
- Market Design
- Computational Economics.

The experiments are conducted electronically through networked computers at the laboratory. The experiments have many applications, including, Auction Experiments; Bargaining Experiments; Jury Rules; Public Good Experiments; Marketing; Organizational Culture; Saving for Retirement; and Finance.

### **I've Done the Basics, What's Next for My Estate Succession Planning?**

1:15 – 2:15 p.m. 151 Sloan

Noted Pasadena attorney Craig Lucas, a highly regarded expert in estate planning, will review the details of personal succession plans. Craig will talk about creative gift strategies for fine-tuning your bequest intentions for individuals and charitable organizations. Topics covered will include testamentary trust provisions, planned gift vehicles, and the implications associated with each type of gift.

## GENERAL INFORMATION

### MEALS

#### **Doughnuts and Coffee**

8:15 – 9:00 a.m. *Gates Annex*

Start the day with an assortment of fresh Danish, doughnuts, muffins, coffee, and juice. Meet your friends and get ready for a full day of events.

#### **LUNCH OPTIONS**

##### **Box Lunch**

12:30 – 1:30 p.m. *Beckman Mall (Registration Tent)*

Reserve a tasty turkey box lunch catered by Bristol Farms, to be picked up between 12:30 and 1:30 p.m. Alumni, don't miss this opportunity to visit with old friends and make new ones over a casual lunch hour. The gathering spot will be under the arches of Gates Annex. Pick up your own lunch and come join the group. Soft drinks provided.

##### **Convenience Store**

The C-Store is located next to Chandler Dining Hall, and has a wide variety of items available on a daily basis. For more information phone 626/395-8012.

Monday - Friday

9:30 a.m. – midnight

Saturday & Sunday

10:30 a.m. – 11:00 p.m.

#### **WINE AND CHEESE RECEPTION**

5:15 – 6:30 p.m. *Gates Annex*

All Seminar Day attendees are invited to a wine and cheese reception served along Gates Annex. Close the weekend by meeting up with classmates to exchange email addresses, phone numbers, etc. and keep the connection going.

#### **ALUMNI BARBECUE**

6:00 p.m. *Beckman Mall (Reunion Tent)*

After the reception, an informal BBQ will offer the opportunity to meet and talk with former classmates and current students. Bring the family. Includes BBQ ribs, chicken, and all the fixings. We encourage you to join us for a perfect ending to Alumni Reunion Weekend 2004.

### FIRST AID

#### **Millikan Library**

On Seminar Day, first aid facilities will be available in Millikan Library, lounge, from 8:30 a.m. to 5:00 p.m.

CALTECH ALUMNI ASSOCIATION



From Caltech to the Cosmos:  
Exploring Space with JPL

ALUMNI COLLEGE

June 18-19, 2004 on the Caltech campus and at  
the Jet Propulsion Laboratory

[www.its.caltech.edu/~alumni/](http://www.its.caltech.edu/~alumni/)



# ASSOCIATION ANNUAL MEETING AND BOARD NOMINATIONS



## Notice:

**In February, the Alumni Association board of directors accepted the proposals of the nominating committee for new board officers and board members. The term of office for directors and officers will begin at the close of the annual meeting, in June 2004.**

The election will take place at the annual meeting of the Association, on Friday, June 11, at 8:30 p.m., at the Caltech Athenaeum, 551 S. Hill Avenue, Pasadena, California.

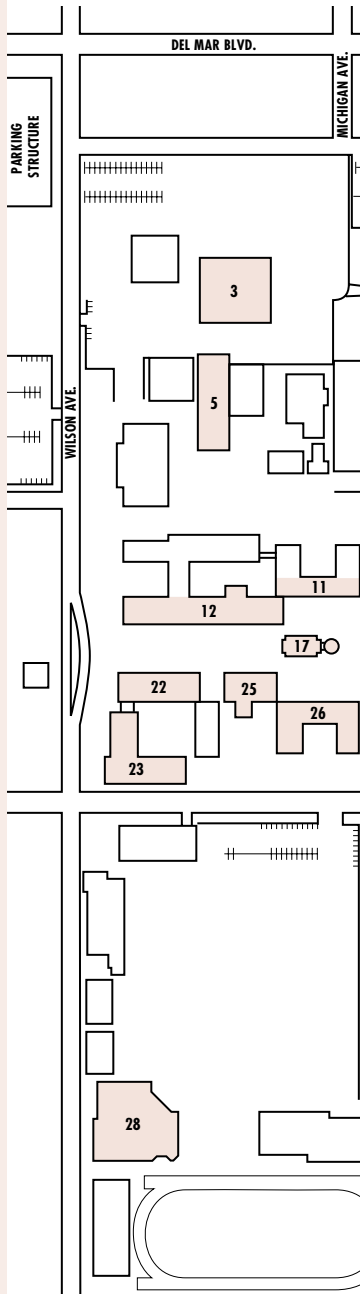
Nominations for officers are as follows: president, Stephanie Charles BS '73; vice president, Ponzy Lu BS '64; treasurer, Angie Bealko BS '96; secretary, Bob Kieckhefer BS '74. Association President for 2003-04, Tom Tisch BS '61, will become official past president for 2004-05, when the new terms begin this summer. The following alumni were nominated to serve on the board: Bob Gershman BS '62; John Krowas BS '93; Victor Leyva BS '86; Tom Lloyd MS '95; and Virginia Trimble MS '65.

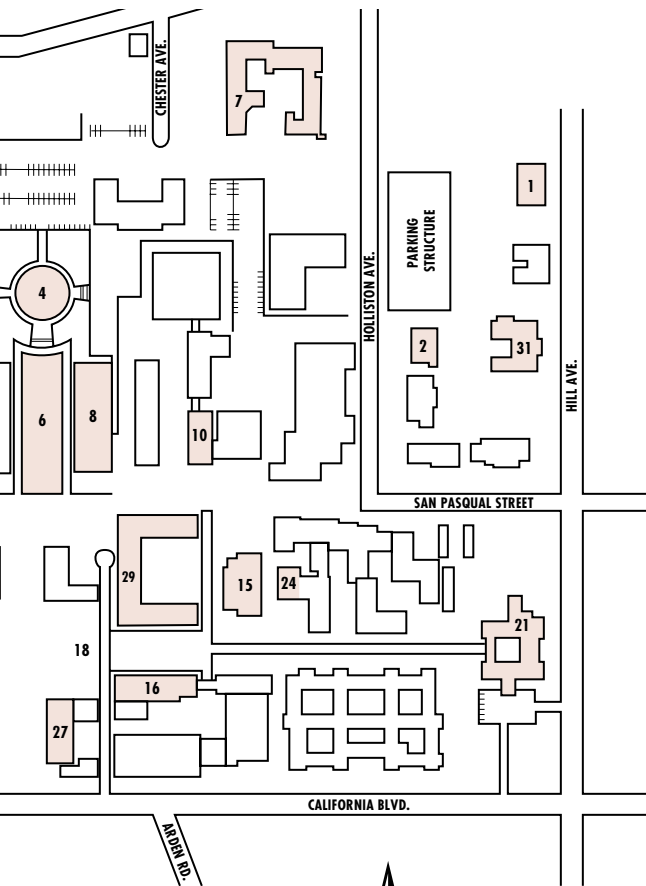
Section 5.01 of the Association's bylaws provides that members of the Alumni Association may make additional nominations for directors or officers by petition, signed by at least 50 members in good standing, providing the petition is received by the secretary no later than April 15. In accordance with section 5.02 of the bylaws, if no additional nominations are received by April 15, the secretary casts a unanimous vote of all regular members of the Association for the election of the candidates nominated by the board. Otherwise a letter ballot is required.



# CAMPUS MAP

Alumni House	1
<b>ARMS LAB</b>	25
Athenaeum	21
Avery Center	7
<b>BAXTER LECTURE HALL</b>	8
<b>BECKMAN AUDITORIUM</b>	4
Beckman Institute	3
Beckman Mall	6
Bookstore (in Winnett Center)	15
Braun Athletic Center	28
<b>BRIDGE LAB</b>	26
Center for Student Services Building	2
Convenience Store	24
Gates Annex	11
Guggenheim	16
<b>KERCKHOFF LAB</b>	12
Millikan Library	17
Mudd Lab – North	22
Mudd Lab – South	23
<b>NOYES LAB</b>	5
Powell-Booth Computing Lab	10
<b>RAMO AUDITORIUM</b> (in Baxter Hall)	8
Sherman Fairchild Library	29
Sloan Lab	27
Throop Site	18
Winnett Center	15





**CALIFORNIA INSTITUTE OF TECHNOLOGY**

# 2004 ALUMNI SEMINAR COMMITTEE

## GENERAL CHAIR

RONALD L. RICHMOND, MS '53, PhD '57

## PAST CHAIR

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MARIE H. BEALL, BS '75

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ROBERT C. BURKET, BS '65

PHOEBE K. DEA, PhD '72

KARINA L. EDMONDS, MS '93, PhD '98

DEBRA DISON HALL, BS '74

JON HAMKINS, BS '90

GREGORY J. HOLK, MS '91, PhD '97

MICHAEL M. KRIEGER, BS '63

LE VAL LUND, BS '47

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JEAN ZHIYUAN WANG, MS '00

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## ALUMNI ASSOCIATION

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ANDREW SHAINDLIN, Executive Director

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