SJSU College of Science
Student Research Day

Many SJSU students work with College of Science faculty on original scientific research projects. The Student Research Day is a public display of some of the wide variety of research projects from all Departments in the College. The student researchers and faculty will be present to answer questions.

In addition, tours of specific laboratories in many Departments will be available.

Friday, May 6, 2005
Duncan Hall (ground level)

PROGRAM

10:00am to 11:45am Poster Session One
11:45 to noon Remarks by SJSU Administration
Noon to 2pm Poster Session Two

Sponsored by:
Sigma Xi (SJSU chapter)
SJSU College of Science
(HYPERLINK http://www.science.sjsu.edu/ www.science.sjsu.edu/)

POSTER SESSION ONE
10:00am to 11:45am

Department of Biological Sciences

1. Frameshift Reversion Analysis in *Escherichia coli*
   Christopher Villatta **Faculty: Robert Fowler**

2. Examining Gene Flow in a Population of *Peromycus maniculatus* in the Warner Mountains using Mitochondrial DNA Sequence of the Cytochrome b Gene
   Amanda Reider **Faculty: Leslee Parr, John Matson**

3. Purification of a Non-heme Bromoperoxidase from an Acorn Worm-Associated Bacterium and Identification of the Bacterium
Jasmine Kaur **Faculty: Sabine Rech**

4. Bromoperoxidase Activity and Diversity of Bacterial Isolates from the Red-Banded Acorn Worm
Sherleen C. Bajao **Faculty: Sabine Rech**

5. Does Practicing Phosphene Detection Change Human Visual Cortex Excitability as Measured by Transcranial Magnetic Stimulation?
Richard Flores, Logan Nguyen,John Hotson **Faculty: Sulekha Anand**

6. Temporal Genetic Variation in Megalopae of *Cancer magister*
Michelle Soriano **Faculty: Leslee Parr**

7. Genetic Variability Among Samples of Oregon Dungeness Crab *(Cancer magister)*
Maria Jose Duarte, Honey Dedhia **Faculty: Leslee Parr**

Department of Chemistry

8. Studies with Sol-Gel Encapsulated Trypsin
Katrina Co **Faculty: Daryl Eggers**

9. Self-Diffusion and Segmental Dynamics of Perfluoropolyethers in the Bulk Melt and Ultra Thin Films
Faculty: John Logan (joining SJSU in Fall 05)

10. The Structural Influence of Bis(terpyridinyl) Transition Metal Complexes on Charge Storage Behavior of Nanowire Transistors
Bo Lei, Chao Li, Wendy Fan, Lee D. Cremar, Daihua Zhang, Jie Han, M. Meyyappan , Chongwu Zhou
Faculty: Daniel Straus

11. Quantitative Detection of Chlorinated Compounds
Travis Rappleye, Tre Wilson **Faculty: Patrick Fleming**

POSTER SESSION ONE
10:00am to 11:45am

Department of Computer Science

12. A Fast Heuristic for the DNA Fragment Assembly Problem
Christopher Wilks **Faculty: Sami Khuri**

13. Operon Prediction using Comparative Genomics
Nikhila Rao, Natalia Khuri **Faculty: Sami Khuri**

Department of Geology

14 An Erupted Record From the Miocene Searchlight Pluton, Nevada
Michele C. Dodge, James E. Faulds, Clavin F. Miller **Faculty: Jonathan Miller**

Department of Mathematics

15. Noise and Random Data Loss Simulations in Application to Fokker-Planck Equations
Bao Fang, Virginia Banh **Faculty: Igor Malyshev**

16. Eigenfunction Expansion of the Solution of 1-D Fokker-Planck Equation
Efrem Rensi **Faculty: Bem Cayco**

Department of Meteorology

17. Impact of El Nino on California Weather and Agriculture
Jeff Herzstein **Faculty: Eugene Cordero**

Moss Landing Marine Laboratories

18. Application of Bomb Radiocarbon Chronologies to Shortfin Mako *(Isurus oxyrinchus)* Age Validation
Daniele Ardizzone **Faculty: Gregor M. Cailliet**

Department of Physics

19. Magnetism in TI2223, A Cuprate Semiconductor
L. Robledo, J. Lee, B. Laumspach, H. Rawls, I. Imam, E.J. Ruiz **Faculty: Carel Boekema**

20 X-Rays from Laser-Plasma Interactions
Vladimir Semenov **Faculty: Ken Wharton**

Between 11:45am to noon a brief program featuring SJSU President Kassing and others will be held. Posters will be changed during this period,

POSTER SESSION TWO
(12:00pm to 2:00pm)

Department of Biological Sciences

21. Protein Expression of a Homolog of Twist (Hro-Twist) in Early Leech Embryos
Christine Nelson, Stephanie Mandal, Larry Peluso, David Bruck **Faculty: Julio Soto**

22. Identifying Disintegrin Alleles Using PCR
Bisrat Wolana, Laura Swanson, Randy Powell, John Perez **Faculty: Julio Soto**

23. Research by Undergraduates Using Molecular Biology Applications (RUMBA)

Program

Faculty: Julio Soto

24. Seasonal Distribution and Abundance of Forensically Important Flies in Santa Clara County
A. Brundage **Faculty: Jeff Honda**

25. How Natural Enemies and Aphid Population Dynamics Affect Organic Broccoli Harvest
D. Nieto, et al. **Faculty: Jeff Honda**

26. Generation of RNA Digoxigenin-11-UTP Hybridization Probes for Tbx5 using Two Different *In Vitro* Transcription Systems
Danielle Acosta **Faculty: Steve White**

27. The Therapeutic Value of RDP58 in a Mouse Model of Radiation Induced Lung Damage.
Charles Sylvia, Ron Wolff. **Faculty: Adrian Rodriguez. Dan Holley**

28. Studies in the Diversity of Microorganisms at a Salt Marsh in Process of Restoration
Ine Jorgensen **Faculty: Sabine Rech**

29. Reversions of the trpA540 Frameshift Mutation in *E. coli*
Aaron Hardin **Faculty: Robert Fowler**

Department of Chemistry

30. Qualitative Dimensions in Surface Plasmon Spectroscopy: Visible and Infrared studies
Anh Duong, Chris Lee, Philip Young **Faculty: Roger Terrill**

31. Structure of Polynucleotides in a Confined Environment
Adna Halilovic **Faculty: Daryl Eggers**

32. Cholesterol based HPLC stationary phases
Lopa Dalal **Faculty: Joe Pesek**

POSTER SESSION TWO
(12:00pm to 2:00pm)

33. Using Circularly Polarized Luminescence (CPL) Spectroscopy for Studying Chiral Luminescent Species in Solution
Shruthi Reddy, Naghmeh Esfandiari, Uyen Le, Sina Yadegarynia
Faculty: Gilles Muller

Department of Computer Science

34. Integration of RFID and Wireless Sensor Networks for Elder Healthcare
Loc Ho, Zachary Walker **Faculty: Melody Moh**

35. Self-Adaptable Trust Mechanism for Web Services
Oana Andreea Dini **Faculty: Melody Moh**

36. Intelligent C Language Debugger
Ming Wang **Faculty: Robert Chun**

Department of Geology

37. Field, Geochemical, and Geochronologic Evidence for Recharging in a Mushy Magma Reservoir: Cathedral Peak Granodiorite, Tuolumne Intrusive Suite, Sierra Nevada Batholith, California
Seth D. Burgess **Faculty: Jonathan Miller**

Department of Mathematics

38. Prime Numbers and Prime Tuples
Dashiell Fryer **Faculty: Daniel Goldston**

39. Green's Functions Simulation for the Family of Fokker-Planck Equations
Shikha Naik, Lawrence "Rocco" Varela **Faculty: Igor Malyshev**

Department of Physics

40. Modeling an Er:Yb:glass Laser: Continuous Wave and Pulsed Operation
Anmol S. Nijjar **Faculty: John Gruber, Ken Wharton**

Additional Posters Available for Viewing

If you would like to see additional posters you can find the following posters hanging in the hallways of these departments in Duncan Hall:

Department of Biological Sciences

Duncan Hall Second Floor - near Room 240

Scanning Electron Microscopy of the Auditory Sensor of *Amphisbaenas*
B. Dawson, **M. Sneary**

Duncan Hall Sixth Floor - Rooms 634 to 654

Bromoperoxidases of Two Newly Isolated Halophilic Bacteria
S. Rech, S. Mayya, **P. Grillione**

Immunomagnetic Flow Cytometry of *Listeria monocytogenes* in food
J.T. Boothby, R. Kibler

A Method of Extracting DNA from Single Features for Multiple Genetic Analysis
A. Henke, T. Chi, J. Smith, **C. Brinegar**

The Effect of Semaphorin SEMA7A on the Migration of T-Cells
M. Amiri, **D.J. Matthes**

Using Genotyping to Study Redwoods in Big Basin
D. Bruno, I. Udransky, M. Chadha, **C. Brinegar**

An Epidemiologic Survey of Raccoon *(Procyon lotor)* Latrine Sites and the Prevalence of Raccoon Roundworm (*Baylisascaris procyonis*) eggs in Pacific Grove and Carmel, CA
G.P. Roussere, **W.J. Murray, M. Kutilek**, D. Levee

Teaching Basic Microbiology Using Flow Cytometry
J.T. Boothby, J. Lew, R. Hicks, **R. Kibler**

Distribution of *Borrelia burgdorferi, Ehrlichia chaffeensis,* and *Anaplasma phagocytophila* in ticks from a coastal region of California
K. Holden, **J.T. Boothby, S. Anand**, R.F. Massung

Additional Posters Available for Viewing

If you would like to see additional posters you can find the following posters hanging in the hallways of these departments in Duncan Hall:

Department of Chemistry

Duncan Hall Basement - Rooms 1 to 11

Unit Operations & Application of Microfluidic Systems to Future Space Missions
A.J. deMello, **B.M. Stone**

Characterization and Applications of Novel Liquid Crystal Stationary Phases for HPLC and OTCEC
C.B. Dawson, P. Marc, R. Seipert. T. Blomquist, **M. Matyska-Pesek, J.J. Pesek**

Separartion of Catechins in Green Tea Using OTCEC

G. Carlon, **M.T. Matyska**, G.B. Dawson, **J.J. Pesek**

Bromoperxidases: Applying Nature's Halogenating Enzymes in Orgnic Chemistry
J. Karpel, **R.K. Okuda**

The Ionization Energy of Cyanophosphinogen (HPCN)
A. Berka, **P.E. Fleming**

Making Fluoride Glasses that Conduct Electricity and Emit Light
M. Plesha, D. Rauser, Shane Kiley, B. Phebus and **R.H. Terrill**

Spectroscopy with Surface Plasmons: Toward Increasing the Information Content of SPR Spectroscopy
M. Zangeneh, N. Doan, **R.H. Terrill**

Duncan Hall Basement - Rooms 12 to 20

Comparing Full-Length and Delected Vitamin D Receptor with Respect to Residues 143 and 278 in 1,25-Dihydroxyvitamin D3 Binging
A. Acevedo, L. Stoynova, K.Dvvis **E.D. Collins.**

Analysis of Polar Organic Acids, Bases and Water-Soluble Vitamins by Type C Silica Hydride Based HPLC Phases
M.T. Matyska, J.J. Pesek, W. Ciccone, L. Brown

OT-CEC Applications for Pegylated Proteins and Ipratropium Bromide and Related Substances in Pharceutical Formulations
V. Krishnamoorthi, **M. Matyska-Pesek, J.J. Pesek**

Additional Posters Available for Viewing

Department of Chemistry (continued)

Duncan Hall Basement - Rooms 12 to 20

The Cholesterol Bonded Phase as a Separation Medium in High Performance Liquid Chromatography
C.B. Dawson, **M. Matyska-Pesek, J.J. Pesek**

Are Equilibrium Constants Obtained by UV-Vis and Luminescence Experiments Equivalent? The Europium (III)-Saccharide System.
S. Smith, **H.B. Silber**, V. Maraschin.

Periodic Lattice Distortions (PLD) in $YBa_2Cu_3O_7$ (YBCO) 50nm Film on $SrTiO_3$ (STO)
M.A. Navacerrada, **J.V. Acrivos**

Solid State Chemistry Research Group at SJSU
J.V. Acrivos

Relation Between Increased Transmission in XAS and Increase in Abrikosov Vortices as T -> Tc.
G. Chigvinadze, G.I. Mamniashvilli, **J.V. Acrivos**

Self Consistent Field SCF HOMO and LUMO for CuO2 Layer in Cuprates
H.S. Sahibundeen, **J.V. Acrivos**

Dreyfus-NSF/DMR-NATO-Del Amo DOE Research Support
M.A. Navacerrada, **J.V. Acrivos**

Duncan Hall Sixth Floor - Rooms 610 to 611

Evaluation of an Energy-Based Smith-Waterman Algorithm for Sequence Alignment in a Parallelized Computation Setting
J. Wang, F. Yang, J. Nair, **B. Lustig**

Santa Clara Country Biotechnology Education Partnership (SCCBEP)
KI. Korsmeyer, Abbott, L. Belanger, L. Handly, G. Horsma, M. Okuda, **E. Collins.**

A Novel Method for Generation of Large Deletion Mutants from Plasmid DNA
L. Stoynova, R. Solorzano, **E. Collins**

Comparison of Luciferase Activity in a Sol-Gel Matrix versus in Dilute Solution
E.J.A. Chen, **D. K. Eggers.**

Additional Posters Available for Viewing

If you would like to see additional posters you can find the following posters hanging in the hallways of these departments in Duncan Hall:

Department of Geology

Second Floor of Duncan Hall - Rooms 221 to 224)

Structure and Emplacement of the Buena Vista Crest Intrusive Suite, Sierra Nevada Batholith, California
Renee McFarlan, **Robert Miller**

The Sentinel Granodiorite: Structure, Emplacement, and Relation to the Tuolumne Intrusive Suite, Central Sierra Nevada Batholith, California
Joseph Petsche, **Robert Miller**

Third Floor of Duncan Hall - Room 314

Nodal Basin(?) Sedimentation in an Ancient Oceanic Fracture Zone, Ingalls Ophiolite Complex, Washington
Ante Mlinarevic, **Robert Miller**

Room 320

MAFIC Injection Into a Nearly Frozen Magma Chamber: Failed (?) Rejuvention and Local Hybridization in the Searchlight Pluton, Eldorado Mountains, Nevada
M. Means. **J. Miller**, C. Miller, N. Cates, J. Wooden, C. Koteas

Department of Meteorology

Sixth Floor of Duncan Hall - near Room 614

Effect of the Antarctic Ozone Hole on Southern Hemisphere Midlatitudes
A. Satish, **E. Cordero**

LABORATORIES OPEN FOR VISITATION:

The following laboratories are available for viewing at the times shown. Students and faculty will be available for questions:

DEPARTMENT OF BIOLOGICAL SCIENCES

FROM 10:00AM TO 2:00PM

Duncan Hall 654	Dr. Chris Brinegar
Duncan Hall 238	Dr. Jeff Honda

From 11:00am to 2:00pm

Duncan Hall 544	Dr. Julio Soto
Duncan Hall 653	Dr. Sabine Rech
Duncan Hall 542	Dr. Leslee Parr

From 11:30am to 12:30pm

Duncan Hall 543	Dr. Robert Fowler

DEPARTMENT OF CHEMISTRY

From 10:00am to 12:00pm

Duncan Hall 12	Dr. Joe Pesek, Dr. Maria Matyska-Pesek
Duncan Hall 11	Dr. Roger Terrill

From 12:30pm to 2:00pm

Duncan Hall 6 and 9	Dr. Roy Okuda

Other interesting displays in Duncan Hall:

The Department of Geology (3rd floor of Duncan) has many interesting displays of maps and geological formations, including many from California.

The Department of Biological Sciences (2nd to 6th floor of Duncan) has numerous displays of many plants and animals, including butterflies, insects and birds.

About the Sponsor's of the Student Research Day

San Jose State University's College of Science

The College of Science (COS) transforms its majors into qualified science professionals for a global and regional Silicon Valley work force, and prepares them for advanced (graduate) training and life-long learning. Core science education is provided for engineers, health care professionals, K-12 teachers, and other technical fields, as well as basic mathematics and science skills to students in on-science majors. Our students are instilled with a general awareness of science and technology, necessary to be an informed citizen in our highly technical, culturally diverse society.

The mission of the COS is:
To prepare students for rewarding careers in biological sciences, physical sciences, mathematics and computer science.

To provide lower division core biology, chemistry, mathematics, meteorology, geology and physics courses for majors in other technical areas.
To offer courses in quantitative reasoning and in the physical universe and its life forms that satisfy the University's general education requirements.
To teach the discipline-specific courses for the science and mathematics teacher credential programs.
One of the ways that the College of Science prepares students for their post college work is to offer a wide range of opportunities to work with faculty on independent research projects. In support of these projects, College faculty obtained $4.5 million in external funding in 2004. Students gain invaluable training, and in most cases work directly with the faculty member involved in the project.
For more information, please visit the College of Science website: **http://www.science.sjsu.edu/**

Sigma Xi, The Scientific Research Society

Founded in 1886, Sigma Xi (pronounced "Zi" as in xylophone) is the international honor society of research scientists and engineers, with a distinguished history of service to science and socity. This non-profit society includes nearly 65,000 scientists and engineers, in more than 100 countries, who were elected to membership based on their research achievements or potential. Nearly 200 members have received the Nobel Prize. Sigma Xi chapters, more than 500 in all, can be found at colleges and universities, government laboratories and industry research centers throughout North America and around the world. In addition to publishing award-winning *American Scientist* magazine, Sigma Xi awards hundreds of grants annually to promising student researchers and sponsors a variety of programs that support research ethics, science and engineering education, the public understanding of science, international research networking and the overall health of the research enterprise.
For information about the San Jose State University Chapter of Sigma Xi, contact the chapter President, Sulekha Anand, at (408) 924-4845 or sanand@email.sjsu.edu.

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Sigma Xi and chapter members
SJSU Office of Student Outreach
numerous other faculty who have helped with various aspects

Last but NOT least:

Thanks and **congratulations** to all the hard working undergraduate and graduate students, and their faculty advisors for their hard work and for sharing it with us today!