



**The College of Science & Engineering**  
**proudly presents its**  
**4th Annual**

***Student Project Showcase***  
***and Alumni Reception***

**Wednesday, May 8th, 2002**  
**6:00 – 7:30 p.m.**  
**Third Floor of Thornton Hall**

## PROGRAM

**6:00 p.m.**

*Viewing Student Projects  
Reception*

**6:40 p.m.**

*Welcome from Dean Sheldon Axler*

**6:45 p.m.**

*Science Lecture*

*"Pesticide Contamination in Museum Collections:  
A Forensic Science Research Experience for  
Undergraduate Science Majors"*

**By Dr. Pete Palmer**

Associate Professor, Chemistry and Biochemistry

**7:15 p.m.**

*Door Prizes Announcement*

(Compliments of the SFSU Bookstore)

*Awards Presentation*

# **Student Project Showcase**

## ***Projects #1— 20 are from Graduate students***

Entry Number 1

### **INTER AND INTRA ANNUAL PATTERNS OF PHYTOPLANKTON ASSEMBLAGES DURING UPWELLING EVENTS OFF THE COAST OF NORTHERN CALIFORNIA (COOP WEST STUDY)**

By: Adria M. Lassiter, Victoria E. Hogue, Al Marchi, and Dr. Frances P. Wilkerson  
Marine Biology  
Faculty Advisor: Dr. Frances Wilkerson

Entry Number 2

### **ANTHRAX TOXIN PROTEINS - A BIOINFORMATICS ANALYSIS**

By: Anita Shyam and Dr. Rick L. Bernstein  
Cell and Molecular Biology  
Faculty Advisor: Dr. Rick L. Bernstein

Entry Number 3

### **SINDBIS VIRUS VECTOR MEDIATED EXPRESSION OF HIV TAT**

By: Annamaria Vafiadis  
Biomedical Laboratory Science  
Faculty Advisor: Dr. Joseph Romeo

Entry Number 4

### **DERMOMYOTOME CELL MEMBRANE PROJECTIONS (CYTONEMES) CORRELATE WITH EARLY DEVELOPMENT OF THE SOMITIC MYOTOME**

By: Bryan Kuo and Dr. Wilfred Denetclaw, Jr.  
Cell and Molecular Biology  
Faculty Advisor: Dr. Wilfred Denetclaw, Jr.

Entry Number 5

### **A HUMAN PROTEIN DOMAIN FOUND IN TETANUS NEUROTOXIN**

By: Carl Larcina  
Cell and Molecular Biology  
Faculty Advisor: Dr. Rick L. Bernstein

Entry Number 6

### **CATAclysmic Variables & Other Faint, X-Ray Emitting Binaries in Omega Cen**

By: Daryl Haggard and Jeffrey Carlin  
Physics  
Faculty Advisor: Dr. Adrienne Cool

Entry Number 7  
**A COMPUTATIONAL MODEL OF DNA BIREFRINGENCE**

By: Diana Shem  
Chemistry  
Faculty Advisor: Dr. Sergio Aragon

Entry Number 8  
**SENSITIVITY AND SUCCESS OF THE NICHE MODEL AT PREDICTING THE  
NETWORK STRUCTURE OF EXTREMELY LARGE FOOD WEBS**

By: Cedric O. Puelston, Erin C. Vaccaro  
Conservation Biology  
Faculty Advisors: Dr. Neo Martinez and Dr. Richard Williams

Entry Number 9  
**THE EFFECT OF ULTRAVIOLET-B RADIATION  
ON THE PRIMARY PRODUCTIVITY OF TRICHODESMIUM SPP.**

By: Erin M. Gordon, Dr. Edward J. Carpenter, and Ajit Subramaniam (USC)  
Marine Biology  
Faculty Advisor: Dr. Edward J. Carpenter

Entry Number 10  
**MATHEMATICAL MODELING OF A COMPOSITE HEAT SINK**

By: Geoff Baldwin  
Mathematics  
Faculty Advisor: Dr. David Ellis

Entry Number 11  
**CLUSTERING OF SOLITONS IN WEAKLY CORRELATED WAVEFRONTS**

By: Hector Martinez  
Physics  
Faculty Advisor: Dr. Zhigang Chen

Entry Number 12  
**2D GEL ANALYSIS OF BONE MARROW PROTEINS  
AFTER RADIATION EXPOSURE IN C57BL AND SJL MICE**

By: Karla Gregg, Dr. Rick L. Bernstein, and Dr. M. Pallavicini (UCSF)  
Cell and Molecular Biology  
Faculty Advisors: Dr. Frank Bayliss and Dr. Rick L. Bernstein

Entry Number 13  
**CATALOG OF MAR FINDER DATA FOR GENES ASSOCIATED WITH  
TRANSLOCATIONS IN HUMAN CANCERS**

Cell and Molecular Biology  
By: Mary T. Wuerth and Dr. Michael A. Goldman  
Faculty Advisor: Dr. Michael A. Goldman

Entry Number 14  
**THE ETYMOLOGICAL DICTIONARY OF GEOLOGY**

By: Matthew Horrigan  
Applied Geosciences  
Faculty Advisor: Dr. David Mustart

Entry Number 15  
**INCREASING EFFECTIVE EFFICENCY OF PHOTO-VOLTAIC SOLAR CELLS**

By: Micheal Bollinger  
Physics  
Faculty Advisor: Dr. Barbara Neuhauser

Entry Number 16  
**S-PHASE PROTEINS OF SCHIZOSACCHAROMYCES POMBE: USING  
BIOINFORMATICS TO FIND HOMOLOGS AND ASSIGN FUNCTION**

By: Ryan Kendle and Dr. Rick L. Bernstein  
Cell and Molecular Biology  
Faculty Advisor: Dr. Rick L. Bernstein

Entry Number 17  
**SECRETORY PHOSPHOLIPASE A2 IS A KEY PLAYER IN ACUTE CHEST  
SYNDROME IN SICKLE CELL DISEASE**

By: Sandra Larkin  
Biomedical Laboratory Science  
Faculty Advisor: Dr. Linda Blackwood

Entry Number 18  
**ALGEBRA AND GEOMETRY OF HIERARCHICAL MODELS**

By: Seth Sullivant  
Mathematics  
Faculty Advisor: Dr. Serkan Hosten

Entry Number 19  
**V CHESS 1.0**  
Stelios Christofides and Wen Yuan Fang  
Computer Science  
Faculty Advisor: Dr. Jozo Dujmovic

Entry Number 20  
**TRANSACTIVATION POTENCY ANALYSIS OF POLYMORPHIC TAT PROTEINS  
USING AN INDUCIBLE EXPRESSION SYSTEM**

By: Yooli Light and Dr. Joseph Romeo  
Biomedical Laboratory Science  
Faculty Advisor: Dr. Joseph Romeo

**Projects #21 — 43 are from Undergraduate students**

Entry Number 21

**THE SPECIATION OF CADMIUM AND MERCURY ACCUMULATED BY  
DATURA INNOXIA PLANT CELLS**

By: Rebekah A. Kelly

Chemistry

Faculty Advisor: Dr. Jane DeWitt

Entry Number 22

**DESIGN OF A PRIMARY SEDIMENTATION TANK**

By: Carmen Rocha and Porfirio Gutierrez

Civil Engineering

Faculty Advisor: Dr. Elahe Enssani

Entry Number 23

**DIVER PROPULSION VEHICLE**

By: Devin Conroy, Juan Arrimbide, and John Zarzar

Mechanical Engineering

Faculty Advisor: Dr. Peter Pfaelzer

Entry Number 24

**FIRE FIGHTER ROBOT**

By: Elad Gottlib, Shahrzad Shariati, and Alan Yuen

Electrical Engineering

Faculty Advisor: Dr. Tom Holton

Entry Number 25

**DISTINCTNESS OF ONCE-INTERSECTING CURVES  
ON THE PUNCTURED N-HOLED TORUS**

By: Emily Putnam

Mathematics

Faculty Advisors: Dr. David Meredith and Dr. Dennis Garity (Oregon State University)

Entry Number 26

**THE EFFECTS OF PHOTOTHERMAL EXPOSURE ON THE GROWTH RATE OF  
JUVENILE SLIDER TURTLES, *PSEUDEMYX SCRIPTA ELEGANS***

By: Erica Elford

Physiology

Faculty Advisor: Dr. Carlos Crocker

Entry Number 27

**WHEELCHAIR WHEELIE BAR**

By: Minku Kwon, Marvin Cubias, and Frank Castellanos  
Mechanical Engineering  
Faculty Advisor: Ralf Hotchkiss

Entry Number 28

**PEMBERTON PLAZA**

By: Alex Lornie and Gokhan Gunan  
Civil Engineering  
Faculty Advisor: Dr. Wenshen Pong

Entry Number 29

**THE FATE OF KAEHN CELLS IN EARLY EPAXIAL MYOTOME FORMATION  
IN THE CHICKEN EMBRYO**

By: Ha-Nam Nguyen, Guillermo Godinez, Laura Peschke, and Dr. Wilfred F. Denetclaw, Jr.  
Cell, Molecular, and Developmental Biology  
Faculty Advisor: Dr. Wilfred Denetclaw, Jr.

Entry Number 30

**SOLAR POWERED VEHICLE**

By: Mike Putnam, Ricardo Sfeir, Mark Galicia, Hassan Bitar, and Chris Li  
Mechanical and Electrical Engineering  
Faculty Advisors: Mike Strange and Dr. Shy-Shenq Liou

Entry Number 31

**OPTICAL EMISSION FROM A 'BULLET' IN THE VELA SUPERNOVA REMNANT**

By: Jeffrey L. Carlin and R. Chris Smith  
Astrophysics  
Faculty Advisor: R. Chris Smith (Cerro Tololo Inter-American  
Observatory in La Serena, Chile) and Dr. Adrienne Cool

Entry Number 32

**SYNTHESIS AND EVALUATION OF PHOSPHONAMIDOTHIONATE OF  
CARBOXYPEPTIDASE G**

By: Jeremy Mallari, Cindy Choy, Alicia Martinez, and Dr. Clifford Berkman  
Biochemistry  
Faculty Advisor: Dr. Clifford Berkman

Entry Number 33

**FOUNDATION IN SOIL WITH LIQUEFACTION POTENTIAL**

By: Judy Pelton and Shawn Spreng  
Civil Engineering  
Faculty Advisor: Dr. Tim Dorazio

Entry Number 34

**ROLLING FOG II  
HUMAN POWERED VEHICLE**

By: Luc Asbury, Sergio Fon, Nicole Lew, and Adam Fernandez  
Mechanical Engineering  
Faculty Advisor: Dr. Peter Pfaelzer

Entry Number 35

**TIMBER BRIDGE DESIGN**

By: Lulseged Girma, Alemayehoh Gardew, Alemayehu Desalegne, and Ronald Bianco  
Civil Engineering  
Faculty Advisors: Dr. Wenshen Pong and Dr. Norman Owen

Entry Number 36

**ANALYSIS OF SOUND SPEED MEASUREMENT FROM ACOUSTIC SOURCES  
OBSERVED AT PIONEER SEAMOUNT**

By: Mike Hoffman, Dr. Roger Bland, Carl Vuosalo, Dr. Toby Garfield, and Joe Adolpho  
Physics  
Faculty Advisor: Dr. Roger Bland

Entry Number 37

**GEOHERMAL HVAC**

By: Wayne Fabrizio and Quan Lu  
Mechanical Engineering  
Faculty Advisor: Dr. Ahmad Ganji

Entry Number 38

**INVESTIGATION OF ORTHO-SUBSTITUTED BENZOATES AT THE  
TETRADECYLTRIMETHYLAMMONIUM MICELLAR INTERFACE**

By: Raymond Wu  
Biochemistry and Chemistry  
Faculty Advisors: Dr. Ursula Simonis and  
Dr. Steven J. Bachofer (Saint Mary's College of California)

Entry Number 39

**SMOKE GENERATOR**

By: Scott Bartlett and Justin Hilt  
Mechanical Engineering  
Faculty Advisor: Dr. Peter Pfaelzer



Entry Number 40  
**DETERMINING UPLIFT RATES AND PATTERNS FROM QUATERNARY MARINE  
TERRACES OF THE POINT REYES PENINSULA, CALIFORNIA**

By: Tandis Bidgoli  
Geosciences  
Faculty Advisor: Dr. Karen Grove

Entry Number 41  
**MINI MICRO BREWERY**

By: Ross Peterson and Tyler Westerling  
Mechanical and Electrical Engineering  
Faculty Advisor: Dr. V.V. Krishnan

Entry Number 42  
**STEEL BRIDGE**

By: Vi Tang, Joeseeph Buitrago, Kim Nguyen, Mahta Kalatabari, and Javier Rivera  
Civil Engineering  
Faculty Advisor: Dr. Norman Owen

Entry Number 43  
**PINKY, THE MICROMOUSE**

By: Winston Wu and Ray Hung  
Electrical Engineering  
Faculty Advisor: Dr. Shy-Shenq Liou

**“DISPLAY ONLY” POSTERS**  
***Projects A and B are from Graduate students***

***Project A — #1 WINNER MAY '01***  
**MYOSIN INVOLVEMENT IN THE UPTAKE OF ROD OUTER SEGMENTS BY THE  
RETINAL PIGMENT EPITHELIAL CELLS IN THE RAT**

Cell and Molecular Biology  
By: Carmela Jaravata, Dr. Lorraine Sohlberg, and Dr. Jennifer Breckler  
Faculty Advisor: Dr. Jennifer Breckler

***Project B — #3 WINNER MAY '01***  
**HOST TRANSCRIPTION FACTOR INTERACTIONS AT THE HEPATITIS B VIRUS  
LARGE SURFACE PROTEIN PROMOTER**

By: Geeta Hompanur, Eric J Huang<sup>1</sup>, and T.S. Benedict Yen<sup>1</sup>  
(<sup>1</sup>Veterans Affairs Medical Center and University of California, San Francisco)  
Faculty Advisor: Dr. Joseph Romeo

## ALUMNI AND FRIENDS, THANK YOU

### 2001-2002 Scholarship Recipients

*David G.C. Cassa Memorial Scholarship*

**Pa Ly (Biochemistry) \$500.00**

*Community Service Learning Scholarships*

**Karen Song (Physiology) \$500.00**

**Jeffrey Cheng (Biology) \$500.00**

### Fall '01 Student Project Fund Recipients

Luc Asbury and teammates (Mechanical Engineering) **\$100.00**

Lelena Avila (Ecology & Systematic Biology) **\$150.00**

Tandis Bidgoli (Geosciences) **\$100.00**

Joseph Buitrago and teammates (Civil Engineering) **\$200.00**

Cindy Choy (Biochemistry) **\$100.00**

Jason Cope (Marine Biology) **\$150.00**

Boni Cruz (Cell & Molecular Biology) **\$150.00**

Benjamin Fan and teammates (Electrical Engineering) **\$100.00**

Charlotte Hedlund (Geosciences) **\$100.00**

Mia Hosaka (Biochemistry) **\$150.00**

Lisa Kerr (Ithyology) **\$200.00**

Matthew Knope (Marine Biology) **\$150.00**

Dale Lovett (Electrical Engineering) **\$150.00**

Pa Ly (Biochemistry) **\$100.00**

Jeremy Mallari (Biochemistry) **\$100.00**

Italia Nappi (Microbiology) **\$100.00**

Ross Peterson and teammates (Electrical Engineering) **\$150.00**

Corrie Saux (Ecology & Systematic Biology) **\$100.00**

Wade Smith (Marine Biology) **\$150.00**

Irina Smith and teammates (Electrical Engineering) **\$100.00**

Vi Tang and teammates (Civil Engineering) **\$50.00**

Winston Wu and teammates (Electrical Engineering) **\$150.00**

Li Zhu (Biology) **\$150.00**

## **FOR YOUR GENEROUS CONTRIBUTIONS!**

### **Spring 2002 Student Project Fund Recipients**

Luc Asbury and teammates (Mechanical Engineering) **\$450.00**  
Marilyn Asuncion-Uchi (Behavioral Biology & Physiology) **\$150.00**  
Kimberly Austin (Behavioral Biology & Physiology) **\$150.00**  
Lelena Avila (Ecology & Systematic Biology) **\$150.00**  
Bonnie Bertolet (Cell & Molecular Biology) **\$150.00**  
Allison Busch (Ecology & Systematic Biology) **\$150.00**  
Jason Cope (Marine Science) **\$150.00**  
Caroline Dingle (Ecology & Systematic Biology) **\$150.00**  
Palma Formica (Biology) **\$150.00**  
Lulseged Girma and teammates (Civil Engineering) **\$450.00**  
Daryl Haggard (Physics) **\$150.00**  
Julian Herdon (Marine Biology) **\$150.00**  
Michael Hoffman (Physics) **\$150.00**  
Racheal Howard (Botany) **\$150.00**  
Mattias Johansson (Biology) **\$150.00**  
Rhonda Lucas (Ecology & Systematic Biology) **\$150.00**  
Paul Marek (Ecology & Systematic Biology) **\$150.00**  
Cedric Puleston (Biology) **\$150.00**  
Mike Putnam and teammates (Mechanical Engineering) **\$450.00**  
Arthur Salmon (Biology) **\$150.00**  
Juniper Scribner (Behavioral Biology & Physiology) **\$150.00**  
Wade Smith (Marine Science) **\$150.00**  
Ricka Stoelting (Evolutionary Biology & Ecology) **\$150.00**  
Amin Suliman (CBL5) **\$150.00**  
Vi Tang and teammates (Civil Engineering) **\$450.00**  
Tony Tran (Biochemistry) **\$150.00**  
Carl Vuosalo (Physics) **\$150.00**  
Cornell Wells (Behavioral Biology & Physiology) **\$150.00**  
Andy Wilson (Ecology & Systematic Biology) **\$150.00**  
Guinevere Wogan (Evolutionary Biology & Ecology) **\$150.00**  
Winston Wu and teammates (Electrical Engineering) **\$450.00**

## Judging Committee

### Faculty Judges:

Dr. Carina Anttila, Genetic Engineering Lab Manager, Department of Biology  
Dr. William Bigler, Director, Center for Biomedical Laboratory Science  
Dr. Eric Hsu, Assistant Professor, Department of Mathematics  
Dr. Andrew Ichimura, Assistant Professor, Dept. of Chemistry & Biochemistry  
Dr. Edward Lank, Assistant Professor, Department of Computer Science  
Dr. Nilgun Ozer, Director of MEP, School of Engineering & Computer Science  
Dr. James Lockhart, Chair, Department of Physics & Astronomy  
Dr. Matthew LaForce, Assistant Professor, Department of Geosciences

### Graduate Student Judges:

Julian Herdon (Marine Biology), Romberg Tiburon Center/Biology  
Geeta Hompanur, Center for Biomedical Laboratory Science  
Jennifer Kreft (Physics), Department of Physics & Astronomy  
Thomas Long, Department of Mathematics  
Susan O'Neil (Conservation Biology), Department of Biology  
Dean Sedlacheck (Engineering), School of Engineering & Computer Science

*THANK YOU for volunteering your time  
to be the Judges of the COSE Student Project Showcase.*

## College of Science & Engineering

Dr. Sheldon Axler, Dean

Dr. Sung Hu, Associate Dean

Dr. John Hafernik, Chair, Department of Biology  
Dr. William Bigler, Director, Center for Biomedical Laboratory Science  
Dr. James Orenberg, Chair, Department of Chemistry & Biochemistry  
Dr. Shy-Shenq Liou, Director, School of Engineering & Computer Science  
Dr. Lisa White, Chair, Department of Geosciences  
Dr. David Meredith, Chair, Department of Mathematics  
Dr. James Lockhart, Chair, Department of Physics & Astronomy

Dr. Mamdouh Abo-El-Ata, Associate Dean for Development

Lannie T. Nguyen-Tang, Director of Alumni Development

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