



The College of Science & Engineering

proudly presents its

5th Annual

**STUDENT PROJECT
SHOWCASE
& ALUMNI RECEPTION**

Tuesday, May 6th, 2003

4:00 – 7:30 p.m.

Second Floor of Science Building

PROGRAM

4:00 p.m.

Judging and Viewing Student Projects

6:00 p.m.

Reception
Viewing Student Projects

6:40 p.m.

Welcome from Dean Sheldon Axler
Scholarship Awards

6:50 p.m.

Expository Presentation
*Dynamics in the world of
microscopic geometric structures*
By Dr. Arek Goetz
Department of Mathematics

7:15 p.m.

Announcement of Showcase Winners

Student Project Showcase

Projects #1 - 41 are from Graduate Students

Entry Number G1A-1

DERMOMYOTOME PLASMA MEMBRANE PROJECTIONS INTERACT WITH THE OVERLYING ECTODERM

By: Brian Kuo and Shayin Gottlieb
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred F. Denetclaw, Jr.

Entry Number G1A-2

CELL BEHAVIORS INVOLVED IN MUSCLE FORMATION IN *XENOPUS LAEVIS*

By: Caroline Meloty-Kapella, Jean K. Gustin, and Dr. Carmen R. Domingo
Cell and Molecular Biology
Faculty Advisor: Dr. Carmen Domingo

Entry Number G1A-3

CRUSTACEAN HYPERGLYCEMIC HORMONE, A POSSIBLE ENDOCRINE REGULATOR OF ECDYSIS IN THE TOBACCO HORNWORM, *MANDUCA SEXTA*

By: Christina Harris and Dr. Megumi Fuse
Physiology and Behavioral Biology
Faculty Advisor: Dr. Megumi Fuse

Entry Number G1A-4

THE IMPACT OF A NATIVE PARASITIC PLANT ON AN INVASIVE SPECIES IN A TIDAL WETLAND

By: Diana Benner
Conservation Biology
Faculty Advisor: Dr. Tom Parker

Entry Number G1A-5

MYOTOME FORMATION IN THE CENTRAL REGION OF THE SOMITE DURING EARLY CHICKEN EMBRYO DEVELOPMENT

By: Ha Nam Nguyen and Dr. Wilfred F. Denetclaw, Jr.
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred F. Denetclaw, Jr.

Entry Number G1A-6

DEPOSITION OF CELLS FROM THE DERMOMYOTOME-DORSOMEDIAL LIP OF THE CHICK EMBRYO DURING EARLY MYOTOME FORMATION

By: Juni Samos
Cell and Molecular Biology
Faculty Advisor: Dr. Wilfred F. Denetclaw, Jr.

Entry Number G1A-7

**AIRBORNE VOCAL COMMUNICATION IN
THE PACIFIC HARBOR SEAL, *PHOCA VITULINA***

By: Kimberly S. Austin

Physiology

Faculty Advisor: Dr. Hal Markowitz

Entry Number G1A-8

**ROLE OF DIURETIC HORMONES IN WATER TRANSPORT
DURING ECDYSIS IN THE TOBACCO HORNWORM, *MANDUCA SEXTA***

By: Marilyn Asuncion-Uchi and Dr. Megumi Fuse

Physiology and Behavioral Biology

Faculty Advisor: Dr. Megumi Fuse

Entry Number G1A-9

**PHYLOGENY AND BIOGEOGRAPHY OF
NEW WORLD *OMOPHRON* LATREILLE (COLEOPTERA: CARABIDAE)**

By: Roberta L. Brett

Ecology & Systematic Biology

Faculty Advisor: Dr. David H. Kavanaugh (CA Academy of Sciences)

Entry Number G1A-10

**FISSION YEAST TELOMERE LENGTH AND
SEQUENCE IN DNA REPLICATION AND REPAIR MUTANTS**

By: Ryan Kendle, Laura Cochrane, and Dr. Sally G. Pasion

Cell and Molecular Biology

Faculty Advisor: Dr. Sally G. Pasion

Entry Number G1B-11

THE ROLE OF PHOSPHOTIDYLINOSITOL 3-kinase (PI3-K) in IFN- β PRODUCTION

By: Shieka Blount

Cell and Molecular Biology

Faculty Advisor: Dr. Steve Weinstein

Entry Number G1B-12

SINDBIS VIRUS VECTOR-MEDIATED EXPRESSION OF HIV TAT

By: Annamaria Vafiadis

Biomedical Laboratory Science

Faculty Advisor: Dr. Joseph Romeo

Entry Number G1B-13

**DEVELOPING A HIGH THROUGHPUT SCREENING ASSAY FOR
ANTI-PRION COMPOUNDS**

By: Aubrey Lau

Biomedical Laboratory Science

Faculty Advisors: Dr. Joseph Romeo and Dr. Diana Smith-Beckerman

Entry Number G1B-14

**CHARACTERIZATION OF HUMAN MONOCLONAL ANTIBODIES TO
HUMAN T CELL LYMPHOTROPIC VIRUS TYPE TWO**

By: Dong Wang
Biomedical Laboratory Science
Faculty Advisor: Dr. Linda Blackwood

Entry Number G1B-15

**CHARACTERIZATION OF THE INTERACTION BETWEEN HnRNPA1 AND
THE CONSTITUTIVE TRANSPORT ELEMENT**

By: Emily Mai, Dr. Robert Nakamura (UCSF), and Dr. Lily Chen
Biomedical Laboratory Science
Faculty Advisor: Dr. Lily Chen

Entry Number G1B-16

**REGULATION OF PLACENTAL CYTOTROPHOBLAST PROLIFERATION AND
INVASION BY JUN ACTIVATING BINDING PROTEIN**

By: Geoff Krampitz, Dr. Susan Fisher, and Dr. Dusko Ilic (UCSF)
Biomedical Laboratory Science
Faculty Advisors: Dr. Joseph Romeo and Dr. Diana Smith-Beckerman

Entry Number G1B-17

**CHARACTERIZATION OF HUMAN APOLIPOPROTEIN A-V: A NOVEL REGULA-
TOR OF PLASMA TRIGLYCERIDE LEVELS**

By: Jennifer Beckstead
Biomedical Laboratory Science
Faculty Advisor: Dr. Diana Smith-Beckerman

Entry Number G1B-18

**GENERATION AND CHARACTERIZATION OF CELL LINES LACKING FOCAL AD-
HESION KINASE AND FIBRONECTIN**

By: Kyle Howerton
Biomedical Laboratory Science
Faculty Advisors: Dr. Diana Smith-Beckerman and Dr. Dusko Ilic (UCSF)

Entry Number G1B-19

**ACTIVITIES OF NOVEL ANTIBIOTICS IN EXPERIMENTAL ENDOCARDITIS
CAUSED BY VANCOMYCIN-RESISTANT GRAM-POSITIVE BACTERIA**

By: Li Basuino, Dr. Lily Chen, and Dr. Henry F. Chambers (UCSF)
Biomedical Laboratory Science
Faculty Advisor: Dr. Lily Chen

Entry Number G1B-20
**VASCULAR ENDOTHELIUM-SPECIFIC GENE EXPRESSION OF A NOVEL GENE,
VELP-1: AN IN SITU HYBRIDIZATION STUDY**

By: Niloufar Naghshineh
Biomedical Laboratory Science
Faculty Advisors: Dr. Linda Blackwood and Dr. Laszlo Komuves

Entry Number G1B-21
**CHARACTERIZATION OF FOCAL ADHESION KINASE KNOCKOUT IN
KERATINOCYTES**

By: Sami Essayem
Biomedical Laboratory Science
Faculty Advisor: Dr. Joseph Romeo

Entry Number G1B-22
**RAPID DETECTION OF DRUG RESISTANCE MUTATION IN
MYCOBACTERIUM TUBERCULOSIS BY MOLECULAR BEACONS**

By: Shou-Yean Lin
Biomedical Laboratory Science
Faculty Advisors: Dr. Lily Chen, Dr. William Probert,*
and Dr. Edward Desmond* (*CA Department of Health Services)

Entry Number G1B-23
**IS GLUTAMATE 317 (E317) OF ALPHA-1,3-GALACTOSYLTRANSFERASE
IMPORTANT FOR ENZYME ACTIVITY?**

By: Patricia Molina
Biochemistry
Faculty Advisor: Dr. Bruce Macher

Entry Number G2A-24
**DATA TRANSFER FOR ENTITY RELATIONSHIP DESIGN TOOL
USING SOAP FRAMEWORK**

By: Adi K Widhanto
Computer Science
Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-25
**CSC 675 ER DESIGN TOOL EXTENSION: DATA TRANSFER
BETWEEN XML AND ODMG DATABASE**

By: Chao Liang
Computer Science
Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-26

A JAVA PROGRAM TO TRANSFER DATA BETWEEN SPREADSHEET AND XML

By: Chao-Hsueh Cheng

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-27

REPRESENTING ER SCHEMAS IN 3D MODE FOR THE ER DESIGN TOOL

By: Cheng-Da Liu

Computer Science

Faculty Advisors: Dr. Marguerite Murphy and Dr. Ilmi Yoon

Entry Number G2A-28

ER SCHEMA-XML DTD TRANSLATION

By: Chin-Huey Sophia Chang

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-29

DATA TRANSFER BETWEEN XML-BASED DATA AND OTHER DATABASES

By: Lananh Dang

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-30

VTP PERFORMANCE EVALUATION AND ENHANCEMENT

By: Pinghua Xiong

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-31

**DATA TRANSLATION BETWEEN XML DOCUMENTS AND
RELATIONAL DATABASES**

By: Shou-Hao Kuo

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-32

**IMPLEMENTATION AND ANALYSIS OF
PROXY CACHE REPLACEMENT ALGORITHMS**

By: Suneetha Velicheti

Computer Science

Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2A-33
IBO EXTENSION USING Xpath/Xquery
By: Xu Huang
Computer Science
Faculty Advisor: Dr. Marguerite Murphy

Entry Number G2B-34
**HYDROSTRATIGRAPHY OF THE WESTSIDE GROUNDWATER BASIN,
SAN FRANCISCO AND SAN MATEO COUNTIES**
By: Erdmann Rogge
Geology
Faculty Advisor: Dr. Mathew LaForce

Entry Number G2B-35
PREDICTING CpG ISLANDS USING THE CHAOS GAME FRACTAL
By: R. Alexander Milowski
Mathematics
Faculty Advisor: Dr. Arek Goetz

Entry Number G2B-36
GOT GALAXIES?
By: Andy Danielson, Dr. Ronald Marzke, and Mike Hudson
Astronomy
Faculty Advisor: Dr. Ronald Marzke

Entry Number G2B-37
**ANALYSIS OF ACOUSTIC SIGNALS FROM
SHIP TRAFFIC AT PIONEER SEAMOUNT**
By: Carl Vuosalo
Physics
Faculty Advisor: Dr. Roger Bland

Entry Number G2B-38
**X-RAY AND OPTICAL SEARCH FOR BINARIES IN A GLOBULAR STAR CLUSTER
USING EARTH-ORBITING OBSERVATORIES**
By: Jason Dorfman, Daryl Haggard, Abby Fuller, and April Gafford
Astronomy
Faculty Advisor: Dr. Adrienne Cool

Entry Number G2B-39
GM= tc^3 SPACE/TIME UNIVERSE CONFIRMED BY SUPERNOVA DATA
By: Louise Riofiro
Astronomy
Faculty Advisor: Dr. Roger Bland

Entry Number G2B-40

SELF-TRAPPING OF LIGHT IN AN ORGANIC PHOTOREFRACTIVE GLASS

By: Marcus Asaro

Physics

Faculty Advisor: Dr. Zhigang Chen

Entry Number G2B-41

CEPHIED VARIABLE STAR SIMULATOR

By: Mark Ciotola, Howard Isaacson, and Michel Lau

Physics and Astronomy

Faculty Advisors: Dr. Adrienne Cool and Dr. Charles Hagar

Projects #42 - 70 are from Undergraduate Students

Entry Number U1A-42

RECEPTOR LIGAND INTERACTIONS OF ECDYSIS TRIGGERING HORMONE (ETH)

By: Cornell Wells

Physiology

Faculty Advisor: Dr. Megumi Fuse

Entry Number U1A-43

**ANALYSIS OF HOST RESPONSE TO DIRECT EXPRESSION OF THE EARLY
CHOLORSIS FACTOR GENE FROM XANTHOMONAS**

By: Darleen Franklin, Dr. Maureen Whalen, Jessica Posada, and Christine Morales

Microbiology

Faculty Advisor: Dr. Maureen Whalen

Entry Number U1A-44

**COMPUTER ANALYSIS OF WHOLE ANIMAL BEHAVIORS: A NOVEL METHOD OF
ANALYZING INSECT ECDYSIS**

By: Helen C. Beale

Zoology

Faculty Advisor: Dr. Megumi Fuse

Entry Number U1A-45

**A PRELIMINARY PHYLOGENY OF THE GENUS *THORDISA*
(MOLLUSCA, NUDIBRANCHIA) AND NEW SPECIES DESCRIPTIONS**

By: Jamie Chan

Zoology

Faculty Advisor: Dr. Terry Gosliner (CA Academy of Sciences)

Entry Number U1A-46

**RESPONSE OF WALL ASSOCIATED KINASE LIKE (WAKLs)
TO HIGH SALT CONDITIONS**

By: Jessie Selby

Botany

Faculty Advisor: Dr. Zheng-Hui He

Entry Number U1A-47

IN PLANTA TRANSIENT EXPRESSION OF *avrRxv* PROTEASE DOMAIN MUTANT

By: Kseniya Zakharyevich

Cell & Molecular Biology

Faculty Advisor: Dr. Maureen Whalen

Entry Number U1B-48

REFOLDING PROPERTIES OF LamB PROTEIN WITH PERIPLASMIC SurA

By: Aram Krauson

Biochemistry

Faculty Advisor: Dr. Mary Luckey

Entry Number U1B-49

**PROGRESS TOWARDS THE SYNTHESIS OF MODEL CYCLIC PHOSPHONATES
AS PUTATIVE BETA-LACTAMASE INHIBITORS**

By: Jack Maung and Joe Blecha

Biochemistry and Chemistry

Faculty Advisor: Dr. Cliff Berkman

Entry Number U1B-50

**REVERSED-PHASE HPLC METHOD USING NON-NITROGEN CONTAINING MO-
BILE PHASES: CAPACITY FACTOR, MOBILE PHASE AND COLUMN SELECTIVITY
FOR AMOXICILLIN, SACCHARIN, AND CAFFEINE**

By: Ka Man Chan

Biochemistry

Faculty Advisor: Dr. Eugene Fujinari

Entry Number U1B-51

INTERACTION OF PORPHYRINS WITH MICELLES

By: Raymond Wu

Chemistry and Biochemistry

Faculty Advisor: Dr. Ursula Simonis

Entry Number U2A-52

FRICITION TESTING

By: Adam Selvin and John Kpaka

Mechanical Engineering

Faculty Advisor: Mr. Greg King

Entry Number U2A-53

THE STETHOSCOPE

By: Abraham Khoury
Electrical Engineering

Faculty Advisors: Dr. Thomas Holton and Dr. Hamid Shahnasser

Entry Number U2A-54

BATTLEBOT - FISTS OF FURY

By: Alberto Campos, Mark W. Curtiss, and Jason Kwan
Mechanical Engineering

Faculty Advisor: Dr. Dipendra K. Sinha

Entry Number U2A-55

FLUIDIZED BED COMBUSTION

By: Alberto Campos, Ricarco Olivo, Susan Laham, Thomas Chan, and Jason Kwan
Mechanical Engineering

Faculty Advisor: Mr. Greg King

Entry Number U2A-56

ADVANCED BRAKE LIGHT SYSTEM

By: Hanif Saeed and Samer El-Lahham
Electrical Engineering

Faculty Advisor: Dr. Sergio Franco

Entry Number U2A-57

GATORBOT DESIGN PROJECT

By: Hau-Wen Chen, Joel Armstrong, and Rashid Osman
Electrical Engineering

Faculty Advisors: Dr. Shy-Shenq Liou, Dr. Thomas Holton, and Dr. Hamid Shahnasser

Entry Number U2A-58

SFSU SOLAR CAR

By: Jesse Avery, Jenny Hsieh, and Hung Deng
Electrical Engineering

Faculty Advisor: Dr. Shy-Shenq Liou

Entry Number U2A-59

IRRIGATION SYSTEMS TECHNOLOGIES

By: Mark A. Massey, Mario C. Rivera, and Qing Ping Huo
Electrical Engineering

Faculty Advisor: Dr. Hamid Shahnasser

Entry Number U2A-60

FATIGUE STRENGTH OF PAPER CLIPS

By: Matthew Baldwin, Francisco Lei, and Suki Jacala
Mechanical Engineering
Faculty Advisor: Dr. Ahmad R. Ganji

Entry Number U2A-61

THE INTIMIDATOR

By: Nelson Ramirez-Moreno, Bruce Mackenzie, Dante Dillon, and Frederick Tai
Electrical Engineering
Faculty Advisors: Dr. Hamid Shahnasser and Dr. Shy-Shenq Liou

Entry Number U2A-62

NOISE REDUCING HEADPHONE

By: Orville Buenaventura and Danny Cheung
Electrical Engineering
Faculty Advisor: Dr. Thomas Holton

Entry Number U2A-63

JASA2E MUSICAL INSTRUMENT PREAMPLIFIER

By: Si Diep, Joshua Bingham, Adam Bowers, and An Tran
Electrical Engineering
Faculty Advisor: Dr. Thomas Holton

Entry Number U2A-64

STEEL BRIDGE

By: Suki Jacala, Jesus Santiago, Greg Ackerman, Danny Chen, and Kevin Smith
Civil Engineering
Faculty Advisors: Dr. Norman Owen and Dr. Wenshen Pong

Entry Number U2B-65

MODAL SYNTHESIS OF CYMBAL SOUNDS

By: David Lundy
Computer Science
Faculty Advisor: Dr. William Hsu

Entry Number U2B-66

INTEGRATED DESIGN/CONTROL OPTIMIZATION FOR RMT SPINDLE

By: Manli Li, Jessilyn Chatman (Alabama A&M University),
and John Rigueur (Fisk University)
Computer Science
Faculty Advisor: Dr. Edward Lank, Dr. E. Kannatey-Asibu* ,
Dr. P. Y. Papalambros*, Dr. A. G. Ulsoy*, and Dr. H. K. Fathy* (*University of Michigan)

Entry Number U2B-67
DIFFERENTIAL EVOLUTION

By: Inho Choi
Mathematics

Faculty Advisors: Dr. David Meredith and Dr. David Ellis

Entry Number U2B-68
**DYNAMICAL SYSTEMS; APPROXIMATION OF IRRATIONAL NUMBERS
USING CONTINUED FRACTIONS**

By: Marcia Crump and Kathryn Maxey
Mathematics

Faculty Advisor: Dr. Arek Goetz

Entry Number U2B-69
MODELING INTERFERENCE PATTERNS FROM BOAT WAKES

By: Craig Huber
Physics

Faculty Advisor: Dr. Roger Bland

Entry Number U2B-70
**APPLICATIONS OF NON-UNIFORM MULTI-SCALE EXPANSIONS TO TIME-
FREQUENCY ANALYSIS**

By: Mike Hoffman

Physics and Mathematics

Faculty Advisor: Dr. Shidong Li

SPECIAL POSTERS



FIELD TRIP TO THE SCIENCE LAB

**By: 4 year-old Future Scientists from SFSU's
Associated Student Early Childhood Education Center**

Christian Almaguer, Janosh Antonich, Martin Austin, Eamon Christmas,
Bryant Dodds, Ethan Frankel, Leroy Jackson, Sebastian Kolderup-Lane,
Kiana Malbas, Ryka Mohammadian, Kaleigh Murdock, Marcus Paredes-Ramil,
Alexander Roxas, Andres Sobalvarro, Santi Velez, Cassandra Weiss

Head Teacher: Erifili Sakalidu, Teacher Assistant: Amber Wingfield,

Child & Adolescent Development Intern: Joy Wi

Faculty Sponsor: Dr. Lily Chen, Center for Biomedical Lab Science

2002-2003 Scholarship Recipients

David G.C. Cassa Memorial Scholarship
Manli Mary Li (Computer Science) **\$500**

Community Service (Radin Foundation) Scholarships
Bonnie B. Bertolet (Cell & Molecular Biology) **\$1,000**
Mark Co (Biology) **\$1,000**
Orville J. Canter (Computer Science) **\$1,000**
Darleen Franklin (Microbiology) **\$1,000**
Angela H. Guglielmino (Biology) **\$1,000**
Nelly P. Lau (Electrical Engineering) **\$1,000**
Luping L. May (Computer Science) **\$1,000**
Elizabeth M. Phillips (Marine Biology) **\$1,000**
William J. Riedy (Computer Science) **\$1,000**
Haijie Xiao (Computer Science) **\$1,000**

C.Y. Chow Memorial Scholarship
 for Mathematics and Computer Science Majors only
Jeremy T. Barker (Mathematics) **\$500**
Limei Wang (Computer Science) **\$500**

Kenneth and Pamela Fong Scholarship
 for Biology and Mathematics Majors only
Laura M. Garrison (Ecology & Systematic Biology) **\$1,250**
Toni N. Torres (Mathematics) **\$1,250**

We would like to express our deepest appreciation to
Drs. Kenneth (BS '71, Biology) and
Pamela (BS '73, Math) **Fong**
 for their continuing and generous support of
 the Student Project Showcase.

Judging Committee

Dr. Carina Anttila, Department of Biology
Dr. Teaster Baird, Department of Chemistry & Biochemistry
Dr. John Caskey, Department of Geosciences
Dr. Lily Chen, Center for Biomedical Laboratory Science
Dr. Carlos Crocker, Department of Biology
Dr. Ahmad Ganji, School of Engineering
Dr. Eric Hsu, Department of Mathematics
Dr. Andrew Ichimura, Department of Chemistry & Biochemistry
Dr. Barry Levine, Department of Computer Science
Dr. James Lockhart, Department of Physics & Astronomy
Dr. David Meredith, Department of Mathematics
Dr. Nilgun Ozer, School of Engineering
Dr. Ray Pestrong, Department of Geosciences
Dr. Dragutin Petkovic, Department of Computer Science
Dr. Diana Smith-Beckerman, Center for Biomedical Laboratory Science
Dr. Albert Uy, Department of Biology

*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. Linda Blackwood, Interim Director, Center for Biomedical Laboratory Science
Dr. James Orenberg, Chair, Department of Chemistry & Biochemistry
Dr. Barry Levine, Acting Chair, Department of Computer Science
Dr. Shy-Shenq Liou, Director, School of Engineering
Dr. Lisa White, Chair, Department of Geosciences
Dr. David Meredith, Chair, Department of Mathematics
Dr. James Lockhart, Chair, Department of Physics & Astronomy

Lannie T. Nguyen-Tang, Coordinator of Alumni Relations and Student Projects



San Francisco
State University

College of Science & Engineering

1600 Holloway Avenue, San Francisco, CA 94132-4163

Phone: (415) 338-1571, E-mail: science@sfsu.edu

<http://www.sfsu.edu/~cse> or <http://www.sfsu.edu/~science>