

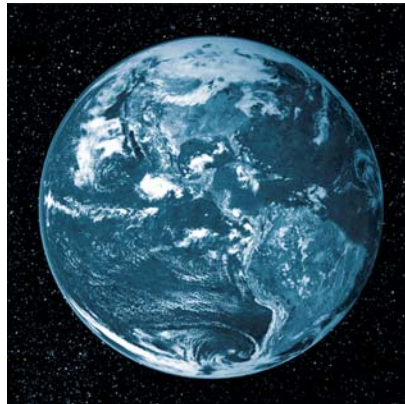


College of Science & Engineering

13th annual

**STUDENT PROJECT
SHOWCASE**

2011 WINNERS



Thank you for your generous financial support toward the
2011 Student Project Showcase!

Dr. Kenneth (BS '71, Biology) & **Dr. Pamela** (BS '73, Math) **F O N G**



Graduate Biological Science Division

FIRST PLACES

(KENNETH & PAMELA FONG EXCELLENCE AWARDS)

Entry Number: 8 GL

**COINCIDENT MASS EXTIRPATION OF NEOTROPICAL
AMPHIBIANS WITH THE EMERGENCE OF THE FUNGAL
PATHOGEN, *BATRACHOCHYTRIUM DENDROBATIDIS***

By: Tina Cheng

Ecology and Systematics

Faculty Advisor: Dr. Vance Vredenburg

Entry Number: 29 GL

**SUPPRESSION ASSAY DEVELOPMENT: TREG'S ROLE IN SUPPRESSING
ANTI-DONOR T CELLS PROLIFERATION IN LIVER TRANSPLANT PATIENTS**

By: Mariela Pauli

Cell and Molecular Biology

Faculty Advisor: Dr. Frank Bayliss

THIRD PLACE

Entry Number: 26 GL

EVOLUTION AT THE ORIGIN: COMPARATIVE GENOMICS OF THE ARCHAEA

By: Hope M. Gray and Robert M. Theis

Microbiology & Computer Science

Faculty Advisor: Dr. Jose R. de la Torre

FOURTH PLACES

Entry Number: 23 GL

ANALYSIS OF THE ROLE OF WNTLESS IN FORMATION OF THE WNT GRADIENT IN THE CHICK NEURAL TUBE

By: Linda Szabo and Lydia Li

Cell and Molecular Biology

Faculty Advisor: Dr. Laura Burrus

Entry Number: 30 GL

MANUFACTURING DONOR-SPECIFIC REGULATORY T CELLS

By: Michelle Wray

Microbiology

Faculty Advisors: Dr. Qizhi Tang (UCSF Dept of Surgery) and Dr. Frank Bayliss

HONORABLE MENTIONS

Entry Number: 1 GL

A NEW HONEY BEE THREAT- THE PARASITIZING PHORID FLY *APOCEPHALUS BOREALIS*

By: Andrew Core

Ecology and Systematics

Faculty Advisor: Dr. John Hafernik

Entry Number: 6 GL

INVESTIGATING ELEMENTARY SCHOOL STUDENTS' PERCEPTIONS ABOUT THE BENEFITS OF INTERACTING WITH SCIENTISTS IN THEIR CLASSROOMS

By: Lakisha Witzel

Conservation Biology

Faculty Advisor: Dr. Kimberly Tanner

Entry Number: 14 GL

EFFECT OF DIURON AND IMAZAPYR HERBICIDES ON PHYTOPLANKTON IN THE SAN FRANCISCO ESTUARY

By: Sarah Blaser

Marine Biology

Faculty Advisor: Dr. Frances Wilkerson

Entry Number: 17 GL

HISTONE ACETYLATION PROFILE CHANGES IN IFN-BETA PROMOTER REGION DUE TO A

By: Anithah Pillai

Cell and Molecular Biology

Faculty Advisor: Dr. Steve Weinstein

Entry Number: 18 GL

CHARACTERIZATION OF GENOME INSTABILITY IN *CDC24* MUTANTS IN *S. POMBE*

By: Anna Marie Tuazon

Cell and Molecular Biology

Faculty Advisor: Dr. Sally Pasion

Entry Number: 43 GL

A NEW BAFILOMYCIN WITH HDAC INHIBITORY ACTIVITY FROM A MARINE-DERIVED *STREPTOMYCES* SP.

By: Jing Xiao

Chemistry

Faculty Advisor: Dr. Taro Amagata

Entry Number: 45 GL

**SYNTHESIS OF AMINO ACID-SUBSTITUTED TETRAPHENYLPORPHYRINS FOR THE USE
IN PHOTODYNAMIC THERAPY OF CANCER**

By: Lisa van Diggelen

Biochemistry

Faculty Advisor: Dr. Ursula Simonis

Graduate Physical Science Division

FIRST PLACE

Entry Number: 62 GP

TESTING CHROMOSOME PROXIMITY HYPOTHESIS USING LOG-LINEAR MODELS

By: Tatsiana Maskalevich

Mathematics

Faculty Advisor: Dr. Serkan Hosten

SECOND PLACE

Entry Number: 61 GP

IDENTIFYING AVIAN VOCALIZATIONS THROUGH THE GABOR TRANSFORM

By: Steven Li

Mathematics

Faculty Advisor: Dr. Shidong Li

THIRD PLACES

Entry Number: 47 GP

EFFICIENT FINITE DIFFERENCE-BASED SOUND SYNTHESIS USING GPUS

By: Marc Sosnick

Computer Science

Faculty Advisor: Dr. William Hsu

Entry Number: 68 GP

EXTENSION OF GRAPH POLYNOMIALS TO SIGNED GRAPHS

By: Logan Godkin

Mathematics

Faculty Advisor: Dr. Matthias Beck

FIFTH PLACE

Entry Number: 78 GP

DUALITY VIOLATIONS IN QCD

By: James A. Osborne

Theoretical Particles

Faculty Advisor: Dr. Maarten Golterman

HONORABLE MENTIONS

Entry Number: 53 GP

**DESIGN AND OPTIMIZATION OF MEMS IMPLANTABLE
PASSIVE SENSOR FOR BIOMEDICAL APPLICATIONS**

By: Di Lan

Electrical Engineering

Faculty Advisor: Dr. Hao Jiang

Entry Number: 54 GP

A HIGH-POWER VERSATILE WIRELESS POWER TRANSFER FOR BIOMEDICAL IMPLANT

By: Jimmy Zhang

Electrical Engineering

Faculty Advisor: Dr. Hao Jiang

Entry Number: 58 GP

ANALYZING TNPI SITE-SPECIFIC RECOMBINATION AT HYBRID SITES USING THE TANGLE METHOD

By: Katrina Wono

Mathematics

Faculty Advisor: Dr. Maria Elena Vazquez

Entry Number: 69 GP

A NEW TWO-VARIABLE CHROMATIC POLYNOMIAL FOR SIGNED GRAPHS

By: Mela Hardin

Mathematics

Faculty Advisor: Dr. Matthias Beck

Entry Number: 72 GP

ENUMERATION OF GOLOMB RULERS

By: Tu Trung Pham

Mathematics

Faculty Advisor: Dr. Matthias Beck

Entry Number: 75 GP

**GEOCHRONOLOGY AND ZIRCON GEOCHEMISTRY OF
GREATER HIMALAYAN LEUCOGRANITES, NW INDIA**

By: Forrest Horton, Willie Hassett, and John Sommerfield

Geosciences

Faculty Advisor: Dr. Mary Leech

Entry Number: 80 GP

A SEARCH FOR HELIUM-CORE WHITE DWARFS IN OMEGA CENTAURI

By: Suzanne Hayward

Physics and Astronomy

Faculty Advisor: Dr. Adrienne Cool

Undergraduate Biological Science Division

FIRST PLACE

(KENNETH & PAMELA FONG EXCELLENCE AWARD)

Entry Number: 89 UL

TRACKING CELL MIGRATION DURING MUSCLE FORMATION IN THE *X. LAEVIS* EMBRYO

By: Armbien Sabillo and Vanja Krneta-Stankic

Physiology

Faculty Advisor: Dr. Carmen Domingo

SECOND PLACE

Entry Number: 85 UL

DEFINING ROLES OF EVOLUTIONARY PP1 PHOSPHATASES IN SPERM FUNCTION AND MALE FERTILITY

By: Thais Cintra, Dr. Jui-ching Wu, Aiza Go, and Dr. Diana Chu

Physiology

Faculty Advisor: Dr. Diana Chu

THIRD PLACE

Entry Number: 95 UL

**THE ROLE OF A SECOND SHELL HYDROPHOBIC INTERACTION IN
TRYPSIN-FOLD SERINE PROTEASE FUNCTION**

By: Anna Batt

Biochemistry

Faculty Advisor: Dr. Teaster Baird, Jr.

FOURTH PLACE

Entry Number: 81 UL

DNA METHYLATION IN THE RED HARVESTER ANT

By: Agni Naidu and W. Cameron Jasper

Physiology

Faculty Advisor: Dr. Christopher Smith

FIFTH PLACE

Entry Number: 82 UL

FRIZZLED10 IS REQUIRED FOR CELL SURVIVAL IN THE CHICK NEURAL TUBE

By: Camila Teng

Cell and Molecular Biology

Faculty Advisor: Dr. Laura Burrus

HONORABLE MENTIONS

Entry Number: 93 UL

MICHAEL AND CONJUGATE ADDITIONS ONTO FULVENES AND 6-VINYLFULVENES

By: Marie Danica Obligacion

Physiology

Faculty Advisor: Dr. Ihsan Erden

Entry Number: 100 UL

IMPROVED METHOD FOR SCREENING LEACHABLE ELEMENTS IN TABLEWARE

By: Jessica Shealor

Biochemistry

Faculty Advisor: Dr. Peter Palmer

Entry Number: 103 UL

HOW CARGOS MOVE TOWARDS THE MICROTUBULE MINUS ENDS IN PLANT CELLS

By: Vedud Purde

Biochemistry

Faculty Advisors: Dr. Ahmet Yildiz (UC Berkeley)
and Dr. Teaster Baird

Undergraduate Physical Science Division

FIRST PLACE

Entry Number: 127 UP

**RAPID PLASMA-ASSISTED, AMBIENT-PRESSURE DEPOSITION OF
CONFORMAL NANOCRYSTALLINE ZINC OXIDE THIN FILMS FOR SOLAR CELL APPLICATIONS**

By: Joachim Pedersen, Heather Esposito, and Mark Brunson

Mechanical Engineering

Faculty Advisor: Dr. Kwok-Siong Teh

SECOND PLACE

Entry Number: 110 UP

USING KNOT THEORY TO IDENTIFY AND ENUMERATE KNOTS OF CIRCULAR DNA MOLECULES

By: Alejandro Samaniego

Mathematics

Faculty Advisor: Dr. Mariel Vazquez

THIRD PLACE

Entry Number: 118 UP

SFSU 2011 EERI SEISMIC DESIGN COMPETITION TEAM

By: Randy Leonard, Oskar Garcia, Qi Ming Zeng, Sean Lennan, Elliot House, Jian Hui Zhou, Shirley Altamirano,
Lea Limbo, Luis Rodriguez, Maher Dabit, Khalil Dabit, and Laurent Lindquist

Civil Engineering

Faculty Advisor: Dr. Cheng Chen

FOURTH PLACE

Entry Number: 112 UP

DOUBLE ARCHED BRIDGE

By: Clarence Li, Linh Ly, Nathan Miao, Misty Hasey,
Chokri Sakhri, Patrick Babasa, and Leonard Lin

Civil Engineering

Faculty Advisor: Dr. Cheng Chen

FIFTH PLACE

Entry Number: 105 UP

**ALKALI METAL DOPED ZEOLITES AS
SOLID STATE REDUCING AGENTS**

By: Devin Nelson

Physical and Materials Chemistry

Faculty Advisor: Dr. Andrew Ichimura

HONORABLE MENTIONS

Entry Number: 125 UP

THERMOACOUSTIC REFRIGERATION TEST UNIT

By: Daniel Lake and Nathan Taylor

Mechanical Engineering

Faculty Advisor: Dr. Morris Megerian

Entry Number: 126 UP

HUMAN-POWERED FORWARD-PROPELLED ROWING MECHANISM

By: Heather Esposito

Mechanical Engineering

Faculty Advisors: Dr. Morris Megerian and Dr. Thomas Holton