



Rochester Academy of Science
43rd Annual Fall Scientific Paper Session
November 12, 2016

Hosted by:
School of Natural and Social Sciences
Roberts Wesleyan College

Schedule of Events:

8:30-9:30AM	Registration – Link between Crothers and Smith Hall <i>Refreshments available; Poster set-up recommended</i>
9:30-11:15AM	Oral Presentations – Smith Hall <i>Presenters – arrive at your room 15 minutes prior to start of the session</i> Session I – General Topics (Smith 360) Session II – Physics + (Smith 359) Session III – Chem and Biochem + (Smith 365) Session IV – Biology – General I (Smith 166) Session V – Biology – General II (Smith 353) Session VI – Biology – Microbiology (Smith 265) Session VII – Biology – Diseases, Cancer, Viruses (Smith 355)
11:15-12:30PM	Poster Presentations Crothers Science and Nursing Center and Smith Hall
12:30PM	Luncheon – Garlock Dining Hall
1:15PM	Larry King Memorial Lecture “Surviving the Mass Extinction: The Amazing Story of Bird Recovery and Radiation after the End-Cretaceous Catastrophe” Jacob Berv, Cornell University

ORAL PRESENTATIONS

SESSION I: GENERAL TOPICS

SMITH 360

MODERATOR: COURTNEY FANTAUZZO

9:30 PRESENCE OF *Agrobacterium vitis* STRAINS ON FINGER-LAKES REGION VINEYARD AND NON-VINEYARD SOIL AND ON CULTIVATED (*Vitis vinifera*) AND WILD VINES (*Vitis riparia*).
Luciana Cursino and Uyen Tran

9:45 THE PARAMETERS OF TARGETED SPITTING IN BELUGA WHALES (*DALPHENACTORUS LUCAS*)
Allison C. Maynard and Michael Noonan

10:00 INDIVIDUAL DIFFERENCES IN THE PLAY BEHAVIOR OF BELUGA WHALES (*DELPHINAPTERUS LEUCAS*).
Mary J. Woodruff and Michael Noonan

10:15-10:30 **BREAK**

10:30 REPRODUCTIVE TRADE-OFFS ASSOCIATED WITH MOUNTING AN IMMUNE RESPONSE IN FEMALE BROWN ANOLES (*ANOLIS SAGREI*)
Aaron C. Heisey, Racquel Case, and Christina Schmidt Ph.D.

10:45 GENOMIC ANALYSIS OF *CAS* GENES ISOLATED FROM *STAPHYLOCOCCI* IN WHITE TAIL DEER POPULATIONS
Shawn Warner and Mark Gallo, Ph.D.

SESSION II: PHYSICS +

SMITH 359

MODERATOR: MICHAEL SCHILACI

9:30 EXAMINING THE COLLECTIVE BEHAVIOR OF CELLS IN A 3D CO-CULTURE.
Roland Sanford and Moumita Das

9:45 INFLUENCE OF THE WATER LAYERS ADSORBED ONTO STAINLESS STEEL 316 ON TRITIUM MIGRATION.
Matthew Sharpe, Cody Fagan, and Walter T. Shmayda

10:00 CRACK FORMATION AND PROPAGATION IN A SEMIFLEXIBLE NETWORK EMBEDDED IN A GEL.
Andrew Sindermann, Moumita Das

10:15 THE EFFECT OF SURFACE MODIFICATIONS ON TRITIUM ADSORPTION AND ABSORPTION BY STAINLESS STEEL 316
Cody Fagan, Matthew Sharpe, Walter T. Shmayda, and W. Udo Schröder

10:30-10:45 **BREAK**

10:45 ANALYZING SOUNDSCAPE TEMPORAL VARIATION IN WESTERN NEW YORK AS A POTENTIAL ASSESSMENT OF BIOLOGICAL DIVERSITY.
Jeffrey Doser and Kristina Hannam

11:00 ECONOMIC ANALYSIS OF THE LIFE CYCLE OF SPENT COFFEE GROUND AS VIABLE FEEDSTOCKS FOR HEATING OIL AND BIOFUELS PRODUCTION
Saddam Alrobaie, Fatima Zara, Jeffrey Lodge PhD

SESSION III: CHEMISTRY AND BIOCHEMISTRY +

SMITH 365

MODERATOR: JASON TAYLOR

9:30 QUANTIFYING LACCASE ACTIVITY AND DEGRADATION OF 17 α -ETHINYLESTRADIOL USING *LENTINULA EDODES* AND *PHANEROCHAETE CHRYSOSPORIUM*.

Alexander S. Milliken and Corey M. Johnson Ph.D.

9:45 SPENT COFFEE GROUNDS AS A VIABLE FEEDSTOCK FOR BIOFUELS PRODUCTION AND ITS POTENTIAL COMMERCIAL USES.

Fatima Zara, Saddam Alrobaie, Jeffrey Lodge PhD

10:00 INDICATION OF TRICHLOROMETHANE SEGREGATION IN 1-HEXYL-3-METHYLIMIDAZOLIUM BIS(TRIFLUOROMETHYLSULFONYL)AMIDE – TRICHLOROMETHANE BINARY SYSTEM.

Markus M. Hoffmann

10:15-10:30 **BREAK**

10:30 SYNTHESIS AND CHARACTERIZATION OF LITHIUM CARBOXYLATES FOR USE IN LIQUID ORGANIC SCINTILLATOR.

Melissa Schmitz, Christopher Bass, and Spencer Stuckey

10:45 ANALYSIS OF THE *PVC* ABCD OPERON.

Christopher S. Campomizzi, William Adams, Collin Edbauer and Mark A. Gallo Ph.D.

11:00 EFFECTS OF PRENATAL MUSIC STIMULATION ON EARLY EMBRYONIC DEVELOPMENT OF *Gallus gallus*.

Emma Strujo, Cliff-Simon Vital, and Poongodi Geetha-Loganathan

BIOLOGY – GENERAL I

SMITH 166

MODERATOR: MICHAEL GRENIER

9:30 MELANIN-CONCENTRATING HORMONE RECEPTOR 1 SIGNALING IS MODIFIED BY CILIARY LOCALIZATION IN FAT CELLS.

Henry Ophardt, Lucas Galbier, Rongkun Shen, and Laurie B. Cook.

9:45 MODELING THE POPULATION DYNAMICS OF MITOCHONDRIA IN MAMMALIAN CELLS.

Kellianne Kornick and Moumita Das

10:00 GENE EXPRESSION AND REGULATION IN FOOD RESTRICTED MICE.

Theodore Nguyen, Preet Sohal, Richard Ruh and Douglas J. Guarnieri

10:15 NOVEL GROWTH BASED LONGEVITY ASSAYS FOR THE DEVELOPMENT OF DRUGS TO TREAT AGING AND AGE RELATED DISEASE.

Jonathan Millen

10:30-10:45 BREAK

10:45 FACTORS AFFECTING SUPER-SPREADING OF EPIDEMICS: A STUDY OF INFECTION IN *PEROMYSCUS*.
Anastasia Toumpas

11:00 USE OF FATTY ACID SIGNATURES TO EXPLORE THE RIVER CONTINUUM CONCEPT.
Kinsey Irvin and Jacques Rinchar

BIOLOGY – GENERAL II

SMITH 353

MODERATOR: RACHEL GRAHAM

9:30 DEVELOPMENT OF MICROSATELLITE MARKER FOR *Scaevola plumieri*.
Adriana Morales and Susan Witherup

9:45 DISSOLVED ORGANIC MATTER STRUCTURE AND QUALITY ACROSS A GRADIENT OF NORTH TEMPERATE LAKES.
Meredith Kadjeski

10:00 ARE COEFFICIENTS OF CONSERVATISM ALWAYS ACCURATE IN PREDICTING SPECIES PERSISTENCE? COMPARING COC VALUES WITH COMMUNITY COMPOSITION DATA FROM THE WESTERN AND FINGER LAKES PORTION OF NEW YORK TO DETERMINE ANTHROPOGENIC DISTURBANCE THRESHOLDS FOR THE STATE-RARE VINE AMERICAN BITTERSWEET (*CELASTRUS SCANDENS*).
Scott Ward and Kathryn Amatangelo

10:15-10:30 BREAK

10:30 MEASURING CYP1A IN FRESHWATER FISH OF WESTERN NEW YORK AS AN INDICATOR OF POLLUTION LEVELS
T. Koetsier, T. Taggart, S. Johnson, K Miller, R. Williams

10:45 ISOLATION OF BACTERIA FROM LAKE WATERS ASSOCIATED WITH WASTEWATER EFFLUENTS CAPABLE OF DEGRADING VARIOUS PHARMACEUTICALS.
Noreen Gallagher and Dr. Jeffrey Lodge

11:00 FURTHER CHARACTERIZATION OF HYDROCARBON DEGRADING BACTERIA ISOLATED FROM SEDIMENT SAMPLES OF SLATER CREEK, NEW YORK.
Norathirah Ahmadtarmizi and Dr. Jeffrey Lodge.

BIOLOGY – MICROBIOLOGY

SMITH 265

MODERATOR: CYNTHIA DAVIS

9:30 ISOLATION AND CHARACTERIZATION OF MUTANT STRAINS OF *ACETOBACTER* DSW_54 WITH ALTERED HYDROGEN PEROXIDE SENSITIVITY PHENOTYPES
Alec Walter and Peter D. Newell

9:45 GENOMIC ANALYSIS OF *STAPHYLOCOCCUS* BACTERIOPHAGE.
James P. Lioi, Janelle Fancher and Mark A. Gallo, Ph.D.

10:00 ISOLATION AND CHARACTERIZATION OF MICROBIAL COLONIZATION IN SNAPPING TURTLE (*CHELYDRA SERPENTINE*) EGGS.
Jessica Gibbons and Poongodi Geetha-Loganathan

- 10:15** CHARACTERIZATION OF NON-RIBOSOMAL PEPTIDE SYNTHASES FROM *STAPHYLOCOCCI*.
Megan Helf, Samantha Sauer, Adam Siedlecki and Mark Gallo, Ph.D.
- 10:30-10:45** **BREAK**
- 10:45** THE EFFECT OF ANTI-BACTERIAL, TRICLOSAN, ON EPILITHIC BIOFILM COMPOSITION, FUNCTION, AND RESISTANCE.
David Kerling and Jonathan O'Brien
- 11:00** TOWARD THE CHARACTERIZATION OF AEROBACTIN SYNTHETASE IUCB FROM A HYPERVIRULENT PATHOTYPE OF *KLEBSIELLA PNEUMONIAE*.
Matthew Rice, Daniel Bailey, Eric Drake, and Andrew Gulick, Ph.D.

BIOLOGY – DISEASES, CANCERS AND VIRUSES

SMITH 355

MODERATOR: PETER LaCELLE

- 9:30** EVALUATING THE BINDING POTENTIAL OF CY5.5-DCL AND CY5.5-DCL-DSS-K-NH₂ TARGETED MOLECULAR IMAGING AGENTS (TMIA) TO C4-2 PROSTATE CANCER CELLS.
Aflah Hanafiah, A. Karim Embong, Rebecca Walden, and Dr. Irene Evans
- 9:45** HUMAN CYTOMEGALOVIRUS REGULATION OF AKT FOR THE INDUCTION OF MONOCYTE TO MACROPHAGE DIFFERENTIATION.
Maia Baskerville, Olesea Cojohari and Gary Chan
- 10:00** COMPARISON OF COCKSACKIEVIRUS B4 SURFACE PROTEINS TO BETA-ISLET CELLS SURFACE PROTEINS IN *HOMO SAPIENS*.
Aaron Weaver, Mia Byrd, and Mark Gallo, Ph.D.
- 10:15-10:30** **BREAK**
- 10:30** VIRAL MODIFICATION OF HLA GENE COMPLEX OF METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS*.
Mahad Noor and Mark Gallo, Ph.D.
- 10:45** INVESTIGATING THE EFFECTS OF STRESS ON REOVIRUS TRANSLATION AND REPLICATION.
Michael Lutz and Emily Ledgerwood
- 11:00** SMALL COLONY VARIANT SWITCHING PHENOMENON IN *STAPHYLOCOCCI*.
Adam Siedlecki, Mahad Noor, Rafay Tariq, and Mark Gallo, Ph.D.