

POSTER COMPETITION WINNERS/ABSTRACTS

Human Services

1st Place

Sexual Assault at SUNY Potsdam: Evaluating Student Awareness

Natisha Romain
SUNY Potsdam

This project gauged SUNY Potsdam student awareness of on-campus sexual assault educational programming and victim resources. We began by interviewing campus administrators about existing on-campus sexual assault resources. Then, to determine student awareness of these resources, we distributed a quantitative survey instrument to approximately 200 students. Our research paper discusses the actual level of awareness of these programs and the effectiveness of current efforts to educate the student body about issues of sexual assault. We offer some recommendations to increase student awareness in hopes that changes be made which would allow a greater advertising and availability of these important resources and programs. Our intent is not to represent the views of all SUNY Potsdam administrators and students, but rather to illustrate the usefulness of using Rapid Appraisal Procedures to quickly assess an issue.

2nd Place

Amblyopia: A Unique Way of Seeing the World

Kimberly Hucks
SUNY Brockport

Amblyopia, commonly referred to as “lazy eye” is an ocular disorder that affects the development of the visual processing center of brain. Transmission of a visual image from the eye to the brain is impaired, decreasing the clarity of an image seen by an amblyopic individual. The ability of the eyes to work together is affected, and the impact on one’s quality of life can be tremendous. Symptoms of this malady typically present in early childhood, although severe physical trauma can induce similar symptoms as well. This poster presentation will address various types of amblyopia, specific causes for the disconnect between visual imaging and messages sent to the brain, and modern interventions that enhance the quality of life for the millions of individuals suffering from this life altering diagnosis.

Natural Sciences 1

1st Place

Structural Relationships Affect the Antioxidant and Neuroprotective Efficacies of Ginkgolide Diterpenes and Other Constituents From Ginkgo Biloba Leaf Extracts Against Induced Neurotoxicity in Rat Hippocampal Explants in vitro

Annalissa Vicencio
Manhattanville College

Certain bioantioxidants, such as *Ginkgo biloba*, may also have neuroprotective properties, with clinical implications for neurodegenerative diseases. The antioxidant efficacies of the terpenoid and flavonoid fractions have previously been studied on many cell lines, but structural mechanisms have yet to be elucidated. Neuroprotective potency may be dependent on hydroxyl reactivity. Previous studies in our lab have demonstrated that Gin B attenuated verapamil-induced neuronal degeneration in rat hippocampal explants and the flavonoid constituents may play a neuroprotective role in maintaining calcium homeostasis. In the present study, the neuroprotective efficacies of these flavonoid and terpenoid constituents were explored through individual pre-treatment exposures of hippocampal explants followed by a neurotoxic insult by verapamil, a calcium channel blocker, or sodium nitroprusside. Excised 1mm coronal brain slices from 7-9 day old Sprague-Dawley rats were explanted for 24 hours on Millicell inserts in 6-well plates and exposed to either Gin A, B, C, or other bioantioxidants (20µg/ml) for 24 hours and subsequently insulted with verapamil (5mM) or SNP (100uM) for 24 hours. Morphometric data from cresyl violet-stained frozen sections (Vibratome UltraPro 5000) were analyzed with Motic Images Plus 2.0 software. Statistical significance was determined using a one-way ANOVA and subsequent post-hoc Tukey's and Dunnett's tests.

2nd Place

Probing the Stability of the Immunologically Active Truncated Human Thioredoxin Via Electrostatics

Janelle Tertullien
City College of New York (CUNY)

The structure of the immunologically active truncated human thioredoxin (Trx80) is unknown and high resolution structural studies with standard techniques like Nuclear Magnetic Resonance (NMR) Spectroscopy in solution are unsuitable due to the tendency of Trx80 to aggregate at millimolar concentrations. For that reason, we have chosen as one of many options to improve the solubility of Trx80 via mutagenesis while maintaining its biological activity. Through the use of bioinformatic tools and based on the well-known structure of human thioredoxin, we have evaluated parameters such as hydrophobicity/hydrophilicity, the effect of removing its C-terminal on the stability of the remaining structure, and selected the following mutants of Trx80: Phe77Asp (F77D), Phe79Asp (F79D) and Phe41Arg (F41R) for expression in an E.coli system. It was concluded from our results from the ClusterW alignment that the mutagenesis of the trx80 mutants was successful, and the results from the protein electrophoresis(SDS-Page) showed that the amount of mutant proteins that were expressed is suitable for further studies.

3rd Place

Glycine 3842 of the Mixed Lineage Leukemia Protein is Critical for Proper Folding of the Catalytic SET Domain

Benny Howard
Syracuse University

The Mixed Lineage Leukemia-1 (MLL) protein is a histone H3 lysine 4 methyltransferase that belongs to a class of proteins that contain an evolutionarily conserved SET domain. MLL positively regulates homeobox (Hox) genes, which are regulators of development in multicellular organisms. Mutagenesis experiments in the *Drosophila* homolog of MLL, called Trithorax (trx), have identified a point mutation in the SET domain that changes glycine 3601 to serine (called *trx*^{z11}) and results in arrested homeotic development and lethality. This glycine is highly conserved across species among SET domain proteins, suggesting that this amino acid plays an important role in the structure and/or function of the SET domain enzymes. To test this hypothesis, we introduced the equivalent mutation (G3842S) into the MLL SET domain and compared the structural and functional properties between the mutant and wild-type enzymes. Using enzyme activity assays, we found that replacement of glycine 3842 with serine abolishes enzymatic activity. Because it was noticed that the G3842S enzyme precipitates more readily in solution, we hypothesized that the loss of enzymatic activity when G3842 is replaced with serine is due to protein misfolding. This was confirmed by light scattering and by analytical ultracentrifugation. It was found that the mutant protein more readily forms high molecular weight aggregates and is polydisperse. In addition, velocity sedimentation studies reveal that the mutant protein contains a larger frictional coefficient, consistent with an altered conformation that experiences more viscous drag. These data are consistent with a model in which a highly conserved glycine is critical for the proper folding and activity of SET domain lysine methyltransferases.

Natural Sciences 2

1st Place

A Single Nucleotide Polymorphism in the Human OR3A1 Olfactory Receptor Gene Discriminates Between an Intact and Pseudogene Allele

Lindita Ismaili

Kingsborough Community College

In mammals, initial detection of chemical odorants occurs when an odorant interacts with a specific olfactory receptor (OR) in the nasal cavity. Although olfactory receptors are known to bind odorants, the specificity of ligands has not been determined for most receptors. The human olfactory receptors are encoded by 1000-1400 genes. In mice, 20% of the OR genes are pseudogenes, but surprisingly, over 60% of the human OR genes are pseudogenes or are segregating between intact and pseudogene alleles. OR3A1 is a segregating human OR gene with an intact allele frequency of 55% and a pseudogene allele frequency of 45%. We have developed a PCR-based assay that detects a single nucleotide polymorphism which discriminates between the intact and pseudogene alleles of the OR3A1 gene. We have used this assay to determine the genotype of individuals and we plan to test these individuals for their discrimination of different odorants. This information can be used to correlate odorant discrimination with functionality of the OR3A1 receptor and a similar assay could be used for determination of ligand specificity of other olfactory receptors. L. Ismaili is a student participant in the Collegiate Science and Technology Program of the NY State Education Department, grant number 0516051091.

2nd Place

Elucidation of the Oxidative Stress Response in Drosophila Melanogaster Adult Males

Pedro Granados

LaGuardia Community College

Oxidative stress, which results from increased production of free radicals and/or decreased levels of antioxidants, has deleterious effects on male reproductive biology, and can lead to infertility. Peroxiredoxin 3 (Prx3) is a mitochondrial thioredoxin-dependent peroxidase that neutralizes excess peroxides; Prx3 plays a cytoprotective role. We investigated whether Prx3 plays a role in the oxidative stress response in male flies. Adult transgenic male flies expressing β -tubulin-GFP were dry starved for 6 hours, and exposed to filter paper soaked in 5% sucrose containing 0% (control), 0.3%, or 0.9% hydrogen peroxide (H_2O_2). After 48h, total RNA was extracted from whole flies and used for Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) analyses. Prx3 mRNA levels increased 2-fold in males treated for 48h with 0.3% and 0.9% H_2O_2 . We next performed an initial screen to determine whether H_2O_2 treatment affects the testis. Phase-contrast and fluorescent microscopy were performed on testicular squashes. H_2O_2 treatment for 48h appears to adversely affect the cells at the apical end of the fly testis, as indicated by decreased β -tubulin-GFP signal in testicular squashes. In summary, 48h exposure to 0.3% and 0.9% H_2O_2 results in increased Prx3 mRNA levels in males and decreased β -tubulin-GFP in the apical cells of the testis.

3rd Place

Synthesis of Pyridinium and Imidazolium Ionic Liquids for Toxicity Studies

Xing Li
Queensborough Community College, CUNY

Ionic liquids (ILs) are salts with melting points below 100 °C. Attention has been drawn to the ILs lately because of their relative non-volatility, non-flammability, wide liquid range, and high conductivity. These properties make ILs good candidates as potential green solvent alternatives to volatile organic solvents. We have successfully prepared a series of halide salts based on 1-methylimidazole and pyridine. 1-methylimidazole and pyridine were reacted with alkyl halides of various chain lengths to produce the corresponding quaternary ammonium halide salts. The salts were converted to ionic liquids bearing the phosphate and bis(trifluoromethylsulfonyl)imide anions. Degree of color and reaction temperature was used to determine purity level. The structures of the salts were confirmed using H-1 and C-13 Nuclear Magnetic Resonance spectroscopy (NMR). The grades of purity were detected by using UV-Vis spectroscopy and fluorescence. The liquids were screened for their toxicity to a variety of microorganisms. Preliminary results indicate that bacterial growth inhibition caused by ILs is dependent on concentration, alkyl chain length and bacterial strain. It was also observed that alkyl chain length affects mycelial growth. This is part of a larger collaborative research project where other similar series of ionic liquids will be prepared and tested.

Natural Sciences 3

1st Place

Interleukin-10 Inhibits Dendritic Cell (DC) Activity by Inducing Apoptosis of Precursors Newly Committed to DC Growth

Jean Bernard Lubin
SUNY Farmingdale

Dendritic cells are antigen presenting cells that regulate adaptive (antigen-driven) immunity. Monocyte-macrophages, while sharing functions with DCs, promote innate (nonspecific) immunity. DCs and monocyte-macrophages share a common precursor. Proteins known as cytokines regulate the growth of DCs from these precursors. Interleukin-10 (IL-10) is a cytokine that suppresses DC growth. However, molecular mechanisms underlying this suppression remain poorly characterized. We hypothesized that IL-10 inhibits DC activity by initiating an apoptotic (programmed cell death) schedule at the onset of DC growth from monocyte/DC precursors. To test our hypothesis, peripheral blood precursors were cultured with cytokines sustaining DC growth (GM-CSF/IL-4) in the absence/presence of IL-10. Temporal analyses of Annexin V binding and cell morphology verified that IL-10 induces apoptosis within 48 hrs. In order to identify IL-10 targeted cells, we designed a flow cytometry-based strategy allowing simultaneous evaluation of apoptosis and cell surface phenotype (immunofluorescence analysis). Our results substantiate that IL-10 mediates apoptosis of monocyte/DC precursors while sparing monocyte-macrophage like cells. Surviving cells exhibited exceptionally high phagocytic ability but lacked the capacity to stimulate naïve T cells (a hallmark function of DCs). Thus, IL-10 regulates DC activity by killing monocyte/DC precursors upon commitment to DC growth while enhancing monocyte-macrophage survival and innate immunity.

2nd Place

The Role of Stat3 in Breast Tumorigenesis

Jamie-Lee Foote
City College of New York

Signal transducer and activator of transcription 3 (Stat3) is a transcription factor that is over-activated in approximately 50% of breast cancers. Studies suggest that primary breast cancers with high levels of activated (phosphorylated) Stat3 respond poorly to chemotherapy. Studies also show that cancer-derived cell lines that contain constitutively activated Stat3 undergo growth arrest when the protein is abrogated. However, Stat3's definitive role in breast cancer tumorigenesis remains elusive. Our aim is to determine whether expression of an activated form of Stat3 (Stat3C) in the tissue of a breast tumor mouse model can lead to enhance tumorigenesis in vivo under the oncogenic background of polyoma virus middle T antigen (PyMT). Our preliminary studies using tumors derived from MMTV driven PyMT mouse lines indicate high levels of activated Stat3 in tumors. Therefore, in order to achieve our goal, an inducible system was created. MMTV-reverse tetracycline-dependent transactivator rtTA (MTB) transgenic animals were crossed with a Tet-O-Stat3C line resulting in doxycycline-inducible Stat3C expression. Finally, to generate Stat3C/MTB/PyMT animals, MMTV-PyMT transgenic mice were crossed with the MMTV-reverse/Tet-O-Stat3C double transgenic mice. Tumorigenic analyses are performed at different time points after doxycycline feeding. Techniques employed for these analyses include western blot, RT-PCR and breast tissue whole mounts.

3rd Place

***Is There a Cross Talk Between Toll/NF- κ B & JAK/STAT
Signaling in Hematopoiesis?***

Jeffrey Uribe

City College of The City University of New York

Drosophila is a model for studying hematopoiesis, regulated by the Toll and JAK/STAT pathways. Loss-of-function mutations in *Ubc9*, a negative regulator of the Toll pathway, result in over-proliferation and differentiation of immune-active blood cells and the formation of tumors. The same phenotype occurs in larvae carrying gain-of-function mutations in the fly Janus kinase gene, *Hopscotch*. The goal of my project is to determine if constitutive blood cell differentiation observed in *Ubc9* mutants is mediated by the JAK/STAT pathway. We are using a transgenic GFP reporter of STAT activity (10X STAT-GFP) to examine which immune cells in *Ubc9* are GFP positive. JAK^{gof} animals are used as a reference to study STAT activation. Preliminary results show upregulation of JAK/STAT signaling in specific cells within the anterior lobes of lymph glands of both *Ubc9* and JAK^{gof} mutants relative to control animals, although the expression pattern is different. Thus, STAT activity is differentially activated in Toll and JAK/STAT pathway mutants. We will now examine if increased 10X STAT-GFP expression in *Ubc9* background is dependent on JAK/STAT function. These experiments will allow us to delineate the lymph gland cells in which cross-talk is occurring and confirm that STAT pathway is downstream of the Toll pathway.

Natural Sciences 4

1st Place

Identification of Novel CTX-M Extended Spectrum Beta-Lactamases in Escherichia coli Clinical Isolates

Ronald L. McHenry, Jr.
SUNY College at Old Westbury

This study aims to identify a class of clandestine beta-lactamases in *Escherichia coli* which are phenotypically resistant to ceftazidime, a third generation cephalosporin. Thirty-one randomly selected single patient clinical specimens of *Escherichia coli* isolated from sources that included urine, blood and sputum were obtained from the Infectious Disease Research Laboratory at New York Hospital Queens. Minimal inhibitory concentration (MIC) experiments to determine the efficacy of antibiotics were performed using E-test methodology. For DNA preparation, isolates were grown using established protocols that included cell lysis followed by ethanol precipitation. Polymerase chain reactions (PCR) were done using primers specific for two classes of beta-lactamases: CTX-M; Forward-(GCTTTATGCGCAGACGAGTG); CTX-M: Reverse-(TGATTGGTGGTGCCGTAGTC) and KPC-2; Forward-(ATGTCACTGTATCGCCGTCT) Reverse-(TTTTCAGAGCCTTACTGCCC). Amplified products were visualized by agarose gel electrophoresis. PCR results of *Escherichia coli* isolates indicated that 16/31 (52%) was positive using KPC-2 primers and 14/31 were (48%) positive using CTX-M primers. Eleven isolates contained both CTX-M and KPC-2 enzymes by PCR. CTX-M beta-lactamases may not be detected in the clinical microbiology laboratory because of their hydrolytic activity towards specific third generation cephalosporins.

Supported by NIGMS-MARC GM08722

2nd Place

Does High Sugar Intake Lead to Obesity?

Emily Kyrillou
Barnard College

Over the last 30 years, the prevalence of obesity has increased dramatically in the United States. Several investigators have shown that the increased obesity incidence is associated with increased consumption of sugar-sweetened beverages. I used mice as a model system to determine whether increased intake of sugar solutions necessarily leads to obesity. To this end, I examined the effects of ad libitum access to sucrose (10% and 34% solution) or fructose (10% and 34% solution) on adipogenesis in four strains of mice (129P3, C57BL/6, FVBN and AKR). All mice were given ad libitum access to chow diet and water during the exposure period. I observed large strain differences in (a) daily intake of the sugar solutions, and (b) weight gain over the 40-day experiment. However, there was no clear relationship between daily intake and weight gain across the strains. For instance, the strain that consumed the most sugar solution (FVB) failed to gain any weight, whereas the strain the consumed the least sugar solution (AKR) gained the most weight. Such results point to a complex relationship between sugar intake and obesity.

3rd Place – Tied

Prevalence of Enterotoxins (SEs) in Staphylococcus Aureus (SA) Isolates From the Bronx, NY

Natalie Robiou

Fordham University

The objective of our research was to determine the prevalence of SEs in wound and blood SA isolates in 100 blood and 109 wound SA isolates that were sequentially collected from four community hospitals in the Bronx. Comparable percentage of MSSA and MRSA strains were found in wound and blood isolates. Presence of 10 SEs (A-E, G, I, O, Q, TSST-1) was determined by PCR. SE genes were frequently detected and only 14.4% of SA isolates did not contain SE genes. The prevalence of individual SE-genes was variable and as follows: SEI>SEG>SED>SEO>PVL>SEC>SEQ>SEB>TSST>SEA>SEE. Combinations of SEs were common as phages, pathogenicity islands and plasmids often encode for more than one SE. The egc cluster (seg-sei-seo) was the most combination. Of note is that SE genes were less common in SA strains that contained the Panton-Valentine Leucocidin (PVL+) gene. The 38 SA PVL+ isolates were further typed using RFLP. Nineteen of 23 MRSA were clone USA300, 2 USA400 and 2 other clones, while 9 different clones were identified among the PVL+ MSSA isolates. In summary our data demonstrated that SE genes are abundant in clinical SA isolates in the Bronx. PVL + isolates are much more common in wound isolates and carry less or no SE genes.

3rd Place – Tied

Analysis of Lipids and Fatty Acids in NMU Rat Mammary Tumor Cells After Treatment With Dietary Fatty Acids

Aileen Fernandez

SUNY Purchase

Research has shown that cancer cell proliferation increases with exposure to omega-6 fatty acids, e.g., linoleic acid (LA), and decreases the exposure to omega-3 fatty acids, e.g., docosahexaenoic acid (DHA). In the present study, NMU cells were cultured with 10% serum, or 1% serum in the presence or absence of DHA or LA for 3 days. Lipids were isolated and separated by thin layer chromatography (TLC). Quantitation of the various lipids were done using scanning densitometry. Fatty acids from the various lipid fractions were examined using Gas-Liquid Chromatography/Mass Spectrometry (GC/MS). Analysis of the lipid patterns revealed that the dominant species were phospholipids and cholesterol. Cholesterol esters were present in smaller amounts. Fatty acid treatment of the cells resulted in no major changes in the phospholipids and cholesterol esters. Differences were observed in cholesterol levels with the various treatments. For example, cholesterol levels were lower in LA and DHA treated cells as opposed to cells treated with 1% and 10% serum. Phospholipids found in cells after 3 days were phosphatidylserine (PS), phosphatidylinositol (PI), and phosphatidylethanolamine (PE). Phosphatidylcholine (PC) was present in smaller amounts. In cells retreated with fatty acids before analysis, PC levels rose, while levels of PS and PI dropped. Further analysis using this model will help us to understand the role of exogenous lipids in normal and cancer cell proliferation. Supported in part by Grants: NIH 62012-05 and NSF Due 0524965.

Natural Sciences 5

1st Place

Mus Musculus Atp8a1 and ATPase 1B and Plasma Membrane Phosphatidylserine Translocation in Neuronal Cells

Kelly Levano
College of Staten Island

Flippases, also known as aminophospholipid translocases (APLTs), sequester phosphatidylserine (PS) to the inner leaflet of the plasma membrane. Biochemical studies have shown that APLT is an ATP-dependent, P-type Mg^{2+} -ATPase activity. In our quest to elucidate the protein or proteins responsible for the plasma membrane APLT activity in neuronal cells, we have been studying the roles of two P-type ATPases, Atp8a1 and ATPase 1B, in the translocation of the fluorescent PS analogue, NBD-PS. Transient overexpression of Atp8a1 in the N18 neuroblastoma cells causes a 2.5-fold increase in plasma membrane APLT activity, but similar overexpression of ATPase 1B does not elicit an increase in APLT activity. In our earlier studies, similar high levels of overexpression of Atp8a1 in the hippocampal neuron-derived HN2 cells yielded elevated, plasma membrane APLT activity. However, relatively lower levels of stable overexpression of Atp8a1 in the HN2 cells does not cause an increase in the plasma membrane APLT activity but clearly alters the time course NBD-PS translocation. PS internalization, which is an important property of healthy cells, is lost in apoptotic cells causing PS externalization and phagocyte recognition of these cells by PS receptor-containing mast cells. Using siRNA and antisense mediated suppression of both Atp8a1 and ATPase 1B followed by rigorous kinetic analysis, we will test the hypothesis that Atp8a1 and/or ATPase 1B contribute toward or modify plasma membrane APLT activity in neuronal cells. Supported by NIH CA77803-03; LS-AMP and MAGNET-AGEP.

2nd Place

Depurination of RNA by Pokeweed Antiviral Protein (PAP): Fluorometric Determination of released Adenine

Ana Sanchez
John Jay College of Criminal Justice-CUNY

Ribosome inactivating proteins (RIPs) are naturally occurring cytotoxic agents found in numerous plant, fungi, and bacterial species. They have been recognized as important antiviral agents. Pokeweed Antiviral Protein (PAP) is an RIP that inhibits protein synthesis by depurination of the conserved sarcin/ricin loop found on the large ribosomal Ribonucleic Acid (RNA). Additionally, PAP has been found to bind and depurinate capped mRNA. This project plans to measure the level of RNA depurination by fluorometric assay of adenine released by PAP.

Ribosomal RNA (rRNA) will be incubated in a suitable temperature and pH environment, having PAP present and absent. After incubation, the RNA mixture is treated with cold ethanol, and the ethanol-soluble fraction undergoes centrifugation. Free adenine present in the recovered portion is treated and converted to its derivative (ethenoadenine). Direct measurements of the derivative will be performed by monitoring emission wavelength (400nm) using an excitation wavelength of 280nm.

The amount of adenine released from rRNA will be determined by the difference between fluorescence readings of PAP-treated and non PAP-treated RNA. In addition, the amount of adenine released will be quantitated by comparison with free adenine controls.

3rd Place

***Chiral Recognition of a Fish Pheromone by CD-Sensitive
Dimeric Zinc Porphyrin Host***

Ekaterina Chadwick

John Jay College of Criminal Justice-CUNY

The following is the determination of the absolute configuration of 17, 20 $\alpha\beta$ -dihydroxy-4-pregnen-3-one, a fish pheromone, by use of the Zinc-porphyrin host-guest CD exciton chirality. The protocol relies on a host-guest complexation mechanism: the chiral substrate is derivatized to give a bifunctional conjugate ("guest") that form a complex with a dimeric zinc porphyrin host that acts as a "receptor". The two porphyrins in the complex adopt a preferred helicity related to the substrate's absolute configuration. The absolute configuration of the substrate is confirmed by molecular modeling studies.

Physical Sciences 1

1st Place

Biocompatible Luminescent Silicon Quantum Dots for Imaging of Cancer Cells

Ngozi Agbasionwe
University at Buffalo

Luminescent silicon quantum dots (Si QDs) have great potential for use in biological imaging and diagnostic applications. To exploit this potential, they must remain luminescent and stably dispersed in water and biological fluids over a wide range of pH and salt concentration. There have been many challenges in creating such stable water-dispersible Si QDs, including instability of photoluminescence due their fast oxidation in aqueous environments and the difficulty of attaching hydrophilic molecules to Si QD surfaces. We report the preparation of highly stable aqueous suspensions of Si QDs using phospholipids micelles, in which the optical properties of Si nanocrystals are retained. These luminescent micelle-encapsulated Si QDs were used as luminescent labels for pancreatic cancer cells. This paves the way for silicon quantum dots to be a valuable optical probe in biomedical diagnostics.

2nd Place

Analysis of Some Near-Infrared Spectra of C₂Br

Elizabeth J. Millings
Suffolk County Community College

In combustion chemistry, the C₂H molecule has been studied extensively because it is an important intermediate and provides an example of the breakdown of the Born-Oppenheimer approximation. A related molecule, C₂Br, supplies a different view of the Born-Oppenheimer breakdown. Previously, only computational studies have been reported regarding C₂Br. Its energy states and spectra were theoretically determined, and a model equation was developed to describe its rotational energy levels. Recently, a spectrum of C₂Br was accidentally detected at Brookhaven National Laboratory. In this project, the spectroscopic data were further examined in an attempt to confirm the assignments, determine the rotational constants, identify spectral lines corresponding to the two bromine isotopes, and identify the band origins. To accomplish this, a LabVIEW computer program was developed and used to calculate the energy levels and predict spectra, which were then compared to the experimental near-infrared (NIR) spectra. The error between the data and the calculations was minimized by adjusting the modeling constants and testing possible assignments. A simulated spectrum was created with each new calculation enabling a set of “best fit” values to be determined.

Physical Sciences 2

1st Place

Synthesis and Characterization of Copolymer-templated Periodic Mesoporous Methylenesilicas and Phenylenesilicas

Abhishek Roka

College of Staten Island

Surfactant-templated periodic mesoporous organosilicas (PMOs) have received much attention as well-defined periodic inorganic-organic hybrids, catalyst supports, hosts for nanoobjects and media for immobilization of biomolecules. In some applications of PMOs, it would be beneficial to enlarge the pore diameter beyond 10 nm, which is a typical limiting pore size value. Recently, it was demonstrated that this goal can be achieved by performing the block-copolymer-templated synthesis of PMO with spherical pores at low temperature (5-15 °C) in the presence of aromatic hydrocarbon (trimethylbenzene) as a micelle expander, following the method reported earlier for large-pore ordered mesoporous silicas. The current project is intended to further explore the opportunities in the synthesis of large-pore PMOs with methylene and phenylene bridging groups and with large cylindrical pores using micelle swelling agents. The work in progress includes:

- Attempt of synthesis of large-pore methylene and phenylene PMOs in the presence of different hydrocarbons and under adjusted conditions, and characterization of the products.
- Optimization of block copolymer ratios, and temperature variations in order to further increase pore diameter to a maximum.

2nd Place

An Electron Paramagnetic Resonance (EPR) Study of Metal-Site Dynamics in Amino Acids: Copper Hopping in Cd-Histidine Crystals

Brenda Marmol

SUNY College at Old Westbury

To understand copper dynamic behavior in a simple biological system, EPR spectroscopy was applied to crystalline samples of a model histidine complex. Dynamics were detected by measuring the EPR spectra as a function of temperature. At low temperature (<160K) the spectra displays two copper patterns, related by a crystallographic two-fold axis. At high temperatures (>230K), the EPR spectrum shows a single copper species. EPR hyperfine component line-widths were fit at the various temperatures in order to determine dynamic characteristics. These results are interpreted using a model where copper atoms hop between two binding sites at low temperature ($T_c \sim 190K$). Below T_c , the copper is frozen in one of the two, symmetry-related sites. As T_c is exceeded, the two patterns collapse into an “averaged” spectrum. We propose that the copper is bound to only one of the symmetry related histidine molecules at temperatures lower than T_c , and at higher temperatures, the copper ion hops across the two-fold rotation axis.

Social Sciences

1st Place

Predictors of Stress, Health Concerns, and Well-Being in a Longitudinal Contemporary, Nontraditional College Sample

Shannon Cazeau

SUNY College at Old Westbury

The present study examined longitudinal data in a sample of largely nontraditional college students, to determine predictors for identifying students at risk for potentially problematic amounts of stress and negative consequences. Participants (N=70) voluntarily completed a battery of questionnaires twice: during the first two weeks (Time 1) and the last two weeks (Time 2) of the same semester. Dependent measures consisted of participants' Time 2 ratings on several items that assessed their perceived stress, health status, well-being, and impact of their health problems on class attendance, which were totaled to yield a dependent-variables total score (DV total). Time 1 scores on independent measures were correlated with Time 2 DV total scores. As expected, two measures of life events stress, along with age, and initial physical and psychological health were successful in identifying students who reported greater stress, more health concerns and lower sense of well-being by the end of the semester. Contrary to expectation, students who worked more hours a week were less stressed, with less health concerns and greater well-being by the end of the semester than those who worked fewer or no hours. Schools could use these predictors to target students who would benefit from stress management interventions.

2nd Place

A Comparison of Tactics used for Coping with Stress by School-Age Children and Teenagers vs. Young Adults

Radjiny Nestor & Trianna Charles

SUNY College at Old Westbury

The present study compared coping behaviors used by children and teenagers (N=103), to those used by young adults (N=160). Coping responses participants reported they "usually" or "always" used to cope with stress were rank-ordered. The top 10 coping tactics used by the children and teens were compared to those used by the young adults, and analyzed by age group (children and teens vs. young adults) and gender (females vs. males). It was hypothesized that: (1) due to greater maturity and experience, the young adults would utilize more positive, problem-focused, cognitive/spiritual coping and health-enhancing tactics than the children and teens; and (2) the females in both age groups would utilize social support more frequently. Contrary to hypothesis 1, the children and teens utilized more positive and problem-focused coping tactics and the young adults reported engaging in more health-threatening tactics. There was comparable use of cognitive/spiritual tactics by the female participants in both age groups, while more men utilized these tactics than did the boys. As expected, social support was used by more females in both age groups. Findings suggest that despite being developmentally less mature, children and teens may be just as adaptive in their coping behavior as young adults.

Technology 1

1st Place

Homeless-less

Julio Torres Santana
Cornell University

Three years ago I was introduced to a project to design a one person's portable shelter that was easy to transport and offered some type of protection against the cold weather. After several sketches and analysis I came up with a concept that differed from any other design ever seen before by my instructors. The project had to be conceived under a \$75 dollars budget; therefore I was encouraged to use material like unwanted pieces wood, traps, other materials found in dumpsters and etc.

Not long ago I put the shelter to the test by re-creating a new re-designed real scale model and tested it on myself. A comparison of temperatures between the inside and the outside of the shelter were made throughout different times one night to test if my hypothesis was correct. My poster will show the results of my studies, research, and interviews for homeless individual from New York City. Also, a Syracuse Post-standard article about the shelter will be visible in the poster, design drawings and more. Finally, I will talk about the materials and methods used to create this portable shelter for the homeless.

2nd Place

The Visualization of 2D Flow Regimes Through the Use of Soap Films

Richard Linares
University at Buffalo

The physics of fluid motion and the transition from laminar to turbulence remains one of the unsolved problems in physics, making the investigation of fluidic phenomenon a hot topic. Fluids are difficult to study experimentally because of the difficulty in observing the inherent motion of fluids. This issue arises due to the fact that fluids are usually transparent or of uniform color and fluids have the tendency to develop in three dimensions meaning. Ample effort has gone into the study of fluid flow using more conventional wind tunnel and water tunnel experiments, but these cases are difficult to model and implement. The elimination of one flow direction (degree of freedom) simplifies the conditions and allows comparison to the simplified numerical computer model. This gives us a starting point to expand our understanding. The experimental method that we have adopted has unique physical properties that make running fluidic studies simple, cost efficient, self containing and easily visualized. Soap film brilliant flow visualization ability; coupled with their two dimensionality make soap films a formable tool for the study of fluids. Soap bubbles are very thin film, essentially a two dimensional surfaces, which when flowing behave as a two dimensional fluid. The primary goal of our experimental work is to construct a counter-flowing shear layer experiment through the use of soap films. Using soap films two dimensionality a temporal developing shear layer can be studied in detail.

Technology 2

1st Place

Noise Reduction of MR Brain Images Via the Use of Spatial and Frequency Filters

Troy Johnson

College of Staten Island

The subject of image noise is quite a proverbial issue in the field of medical imaging. It is the result of pixel fluctuation in an image and usually occurs when light exposure on the subject being examined is at a minimum. This unwanted behavior appears as random speckles on a normally smooth image and gives it a grainy appearance.

Image noise isn't exclusive to medical imaging but also affects digital cameras and is a grave concern to camera manufacturers. In photographs, noise appears as specks, pale areas of white or blotchy patches where there is normally a uniform graduation of shade. This outcome is usually created by electronic noise and low light conditions. Electronic noise in digital photography occurs during the process of converting light into digital numbers.

This project studies the effectiveness of spatial and frequency filtering in reducing noise in five brain images at various noise intensities. The usefulness of both filters are tested and analysed on the images via the use of algorithms. From the procedures it will be shown that the pixels which constitute images can be mathematically manipulated to reduce noise thereby refining an image's appearance.

2nd Place

A System for Nano Fibers

Beverly Theodore
SUNY Farmingdale

Electrospinning is a novel technique for producing fibers with nanoscale diameters from a wide range of materials. In this process, a strong electric field causes a viscous solution to form a cone, from which a thin fluid jet is formed. This fluid jet may harden by a variety of processes and become a continuous nanoscale fiber. The fiber is collected using a collector electrode. The nanofiber has a wide range of applications from medicine to textiles,

A team of Science and Technology students at SUNY-Farmingdale have utilized the principles of electrospinning and the concepts of general engineering to design and build a system for nanoscale production of fibers. This poster will present the details of the "home-built" nano fabrication system. It will present the unique aspects of the project and its wide application potentials.

ORAL PRESENTATION

ABSTRACTS

Human Services/Social Sciences - Orals

What You Don't Know May Hurt You: Women and Breast Cancer

Judith Belizaire
Long Island University

According to the current statistics, breast cancer is the second leading cause of death among women between the ages of 40- to 55 in the United States. It is important to inform women about lowering the risks of breast cancer by living a healthier lifestyle such as exercising, eating healthy and not smoking and drinking alcohol. The presentation will review lifestyle choices and ways in which women can detect breast cancer during earlier stages. Finally, how professionals in the field of occupational therapy can assist women who have been diagnosed with breast cancer. More specifically, how Occupational therapists assist breast cancer patients in utilizing the most effective treatments to help improve their level of physical and mental function and to enhance their quality of life.

Youth Violence Prevention

Daniel Bonnet
Manhattanville College

In today's world youth violence can be seen throughout television, newspapers and even in our own community. The youth of today need a place where they can feel safe and comfortable to come together and talk about different issues they go through every day. They at times need to break down the barriers that exist between teens of different ethnic groups. The barriers youth create between different cliques and the relationship with teachers in their schools. In a series of interactive activities done in experiential workshops in retreat like settings called Power of Peace; approximately 95 participants from New Rochelle High School, take an opportunity to look at their lives. The uniqueness is that each person's life experiences make what they encounter in a workshop significant. Their life story becomes a manual that they follow over the course of the workshop. The fact is that most high schools in the country have issues where diverse students are not able to communicate. This was also shared by 99% of the young people that attended the workshops. They also addressed issues of interaction between students and teachers. The research was conducted as an observation of each group's participation in the workshop, and a pre/post test survey that was designed to measure attitudes towards themselves, others and alternatives to violence. The surveys also included space for narrative comments. Many of the results indicated that the youth of today have concerns with trust and desire a place or a person they can confide in. They enjoy the fact that they can interact with peers from different ethnic backgrounds and personalities. Also, the relationships that are formed with other students and teachers are taken back into the school environment after the workshop. Many participants state that "It is a life changing experience!". The results indicate that this is so. The strategy is not necessarily to change the culture of a community or school environment but rather

to change the climate in which they live and to give them a clearer perception of the world that they inhabit and find positive alternatives for themselves and their community. The intended work is to eventually have all students participate in the workshops and to further evaluate the progress.

PAX 6, Finding New Target Sequences

Nicholas Calder
Cornell University

This was purely a paper research project. Paper where red to figure out the known target sequences of PAX6 transcription factor. A genomic electronic library was used to analyze the exact sequences of the target sequences. The sequences produced a consensus sequence which was then used a reference in order to locate other sequence with the mouse genome that might possibly be effected by the PAX6 transcription factor. This Paired Box 6 protein binds to many regions in the genome, and is most commonly involved in the development of the eye. It is speculated the PAX6 is also involved in the development of the brains, and various parts of the nervous system. No new target sequences where discovered in my own research. Now according to many papers, new sequences have been discovered, and also the PAX6 gene is not a protein that works on it own. It was believe that PAX6 functioned alone but current research has reveal that PAX6 works in close relationship with other PAX factors. It has also been reveal that the ratio of PAX factors to one another play an important role in the gene expression that occurs afterwards.

I will attempt to present whatever I can about my research from my last year in high school, so that it serve as an example of how even ordinary people can be involved in the scientific process without spending huge amounts of cash. After presenting what I did, I will attempt to discuss the developments made in the understanding of PAX6, especially in terms of functioning target genes.

Are Women Dissatisfied With Their Body Image?

Omnia Ibrahim
Fordham College

A thin body figure is believed to be society's ideal appearance. The numbers of women with eating disorders have been drastically increasing due to society's pressure on female body image. Society also plays a factor on a man's view on how a female body should appear to be. The purpose of this study was to analyze whether women are dissatisfied with their figure, whether a society is factor to their dissatisfaction/disorder and do women differ from men in their perception. In this study 14 people were randomly selected; 7 females and 7 males. Each person was given a questionnaire indicating their age, sex, occupation and ethnicity. Followed by that, they were given a package, this included silhouettes (generated female body images). Women were to indicate the silhouette that most closely represents their own body conformation by encircling it and writing S in the circle, the silhouette that most closely represents their ideal body conformation by encircling it and writing I in the circle, the silhouette that most closely represents the average female by encircling it and writing A in the circle, and the silhouette that most closely represents the society's ideal body conformation by encircling it and writing SI in the circle. Men were asked to follow the same procedure excluding the figure the closely represent their figure. Results indicated there were evidence women were dissatisfied with their body image. Results also showed society played a role in dissatisfaction.

Natural Sciences - Orals

Formation and Study of [Gd(CNTA)]³⁻ complex

Eser Akturk
New York University

A novel ligand cystine nitrolotriacetic acid (CNTA) has been synthesized based on the preparatory method of Michealis et al.¹ With six acetate and two nitrogen groups present, CNTA has the ability to form highly stable complexes with various metals such gadolinium (III) in the same manner analogous to that of nitrolotriacetic acid (NTA). As such, CNTA has the potential to be utilized as a magnetic resonance imaging (MRI) contrast agent. I will be presenting recent data related to the refinement of the synthesis of the CNTA and its complexes with various lanthanide metals.

Recently, complexation of CNTA with gadolinium (III) in the formation of [Gd(CNTA)]³⁻ complex has been successful and determined by infrared spectroscopy. Efforts to bind CNTA to other lanthanides and attach these complexes to the surface of silver and gold nanoparticles through a method described by Roux et al.² are currently underway.

Phylogenetic Relationships Among Australian Agamid Lizards Using Nuclear and Mitochondrial DNA Data

Emmanuel N. Asare
Clarkson University

Australian agamid dragon lizards include notable species such as the frill-neck lizard and thorny devil. Previous molecular phylogenetic hypotheses using mitochondrial DNA loci provided support for monophyly of some genera but found strong support for nonmonophyly of others. Nuclear DNA is known to be less variable than mtDNA but may provide support for deep relationships among species that are poorly resolved using mtDNA. However, only one phylogenetic analysis has used nuclear DNA. We perform combined and separate analyses of mtDNA and nuclear DNA from the potassium voltage-gated channel (KCNA10) for about 90% of Australian agamid lizard species. Our results are entirely congruent with previous mtDNA analyses.

Conformational Switch Mechanisms of Zinc-Mercaptoacetamide Complexes

Alicia Bowen
SUNY College at Old Westbury

The solution state behavior of a series of phenyl mercaptoacetamides was studied by ¹H NMR and complexometric techniques in the presence of divalent zinc cations to determine the significance of intramolecular inductive, steric, dipole-dipole, and dipole-ion effects in complex formation. Xylenol orange (XO) was used as a competing ligand to the mercaptoacetamides in a spectrophotometric method. The initial concentration of the xylenol orange (XO) and zinc acetate reagents were 8.0 uM and 1.6 x 10² uM, respectively. The mercaptoacetamide concentrations were varied from equimolar with respect to the zinc acetate up to a 4:1 molar ratio of ligand to zinc. The Zn-XO concentrations were determined by monitoring the absorbance at lambda max (570 nm). The greatest decrease in Zn-XO concentration was

observed in order for the ortho-substituted [2,6-dimethyl phenyl mercaptoacetamide], followed by the meta-substituted [3,5-dimethyl phenyl mercaptoacetamide], and lastly the unsubstituted phenyl mercaptoacetamide. These trends are associated with the nucleophilic tendencies of the thiolates. These trends are also supported by the molecular calculations of the relative conformational energies and the relative acidities of the PMA ligands. These results offer a foundation for a more descriptive examination of the role of non-covalent forces in the function of zinc-sulfur proteins such as Metallothionein and Matrix Metalloproteinases.

Impacts of Mercury Emissions from Coal-Fired Power Plants in Western Pennsylvania

Carlos BuWu
Monroe Community College

Mercury, a neurotoxin, is toxic to the human especially the brain, nervous system, kidney, and liver. Power plants are the biggest source of mercury emissions in the United States. When fully implemented, the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR), by the US Environmental Protection Agency (EPA) will lead to a reduction in mercury emissions from coal-fired power plants by 70 percent to fifteen tons per year by 2018. The EPA estimates that due to these higher restrictions mercury deposition will be reduced eight percent on average in the eastern United States. A concern exists that near power plants deposition of mercury will be much greater than average leading to a "hot spot" where exposure may be greater than desired. For this study a "hot spot" is defined as an area no less than four square miles with a mercury concentration higher than the average by one standard deviation. The goal of this study is to determine the effect of three coal-fired power plants on the surrounding environment in western Pennsylvania. During the growing season oak leaves collect deposited mercury from the power-plant emissions and have a large surface area to collect mercury. The experimentation focused on oak leaves from leaf litter within a five-mile radius of each power plant. Sample collection began with mapping of the area around the power plants to determine easy access locations within circular sampling rings, and collection of oak leaves from the leaf litter at the sampling locations. The samples collected were dried, ground into small particles, and processed using a Direct Mercury Analyzer (DMA) to calculate the mercury content in the samples. After the results were collected the data was analyzed to determine if "hot spots" occurred. The results did not indicate a "hot spot" in the region near the power plant. However, the information shows a possible effect of the power plants increasing mercury concentration in a southeast direction, consistent with the prevailing wind pattern. The data shows a possible correlation of elevation increasing deposition but the data is not conclusive. Therefore, the power plants had little impact on the presence of a "hot spot" on the surrounding area.

Indigenous Treatment of Malaria among Tribal Populations in Ewaso-Narok, Kenya

Jessa Davis
St. Lawrence University

Rise in the use of herbal medications has yielded an increase need for ethnomedical knowledge. Such knowledge is being lost due to migration of younger generations to urban settings. Additional popularity factors include ineffective Western biomedical treatment and pathogen resistance. For malaria, this is especially pertinent. In July 2007, I conducted an ethnobotanical survey of Ewaso-Narok Swamp in

Laikipia District, Kenya. Twenty-four household interviews and three key informant interviews were conducted, yielding 30 medicinal species. Species were analyzed via transect sampling and alkaloid trends in botanical families from secondary and primary literature. Data collected was submitted to the Department of Biology, St. Lawrence University as a senior thesis.

Synthesis and Characterization of Copolymer-Templated Periodic Mesoporous Organosilicas With Very Large Pores Using Hydrocarbons as Micelle Expanders

Kristina Foulis
College of Staten Island

Surfactant-templated periodic mesoporous organosilicas (PMOs) have received much attention as well-defined periodic inorganic-organic hybrids, catalyst supports, hosts for nanoobjects and media for immobilization of biomolecules. In some applications of PMOs, it would be beneficial to enlarge the pore diameter beyond 10 nm, which is a typical limiting pore size value. Recently, it was demonstrated that this goal can be achieved by performing the block-copolymer-templated synthesis of PMO at low temperature (5-15 °C) in the presence of aromatic hydrocarbon (trimethylbenzene) as a micelle expander, following the method reported earlier for large-pore ordered mesoporous silicas. The current project is intended to further explore the opportunities in the synthesis of large-pore PMOs using a procedure similar to those previously reported, as well as modifications of synthesis procedures used for the synthesis of ordered mesoporous silicas with linear hydrocarbons as swelling agents. The work in progress includes:

- Synthesis and/or characterization of silicas with large spherical and cylindrical mesopores using procedures previously reported.
- Synthesis of large-pore PMOs in the presence of different hydrocarbons and under adjusted conditions, and characterization of the products.
- Optimization of block copolymer ratios, and temperature variations in order to further increase pore diameter to a maximum.

Pore size is markedly increased upon the increased ratio of two block copolymers in comparison to those previously presented in the literature, with pore sizes of up to ~16nm and larger. In addition, pore distribution has demonstrated a high degree of uniformity with specific surface areas of over 100 square yards.

The Eyes as a Gateway to the Health of Our Bodies

MaryAnn Garcia
SUNY Optometry/City College of New York

Optometrists serve a crucial role as the Primary care takers of our Eyes. Ocular testing not only provides a means of diagnosing the overall health of the eyes and vision but can also provide a tremendous amount of insight into the overall health of the body. The purpose of this presentation is to highlight the importance of optometric testing by illustrating its use in the diagnoses and treatment of systemic illnesses which often have ocular manifestations. Diabetes Mellitus and Hypertension which is often related with heart disease are two of the leading preventable causes of death in the U.S. Both of these diseases have ocular manifestations or symptoms termed diabetic retinopathy and ocular hypertension respectively.

Diabetic retinopathy is the most common diabetic eye disease and a leading cause of blindness in American adults.¹ This disease is characterized by the growth of new blood vessels on the surface of the retina and rupturing of existing vessels. Unfortunately the disease progresses in stages that are often asymptomatic requiring yearly dilated eye exams as the best means of prevention, if the disease progresses it can be treated through a laser procedure or a vitrectomy. Ocular Hypertension is characterized by elevated intraocular pressure. Ocular Hypertension can often be used to detect if someone has high cholesterol by a ring around the cornea called arcus.

Optometric care is a key component of Primary Health Care. It's potential in improving the overall quality of life of many individuals is often understated. It is my hope that through this presentation a greater appreciation of power that lies in Primary Care as preventative measure is recognized.

***Immediate Early Gene Expression in Finch Forebrain:
An Analysis of Reward Pathway Function in Performance of Learned Song***

Alain Goldman
LaGuardia Community College

The forebrain of some avian species has evolved a system of interconnected nuclei dedicated to acquiring and performing learned song. Birds that learn song syllables can therefore provide a model brain system for investigating the neural bases of vocal learning, a form of sensory-motor integration also necessary for learning human speech. As a bird learns a song it performs "undirected" singing. Once song is learned, the bird can also perform "directed" singing - singing directed to another individual, as in courtship or territorial defense. Directed singing is motivated by the presence of another bird. What is the motivator of undirected singing? It has been shown that nerve cell terminals that release opiates (neurotransmitters chemically similar to opium) target vocal control nuclei. Our study tests the hypothesis that release of endogenous opiates occurs specifically during undirected song and motivates song performance. Six birds were recorded for directed and undirected song and then sacrificed 90 minutes later. Forebrain tissue is being analyzed with immunocytochemistry for expression of immediate early gene Egr-1 (and activation marker) and the opiate methionine enkephalin (mENK). The distribution of ZENK with respect to mENK positive cells is currently being assessed with digital microscopy and NIH imaging software.

Facile, High-Yielding Synthesis of Fluorovinyl Sulfones

Maggie He
The City College of New York, New York

The altered properties and reactivity of organic molecules by fluorine atom substitution and consequently their biological activity continue to fuel interest in synthetic access to selectively fluorinated compounds. Vinyl fluorides are not only important building blocks, but they are in many instances biologically useful entities, e.g. peptide isosteres and enzyme inhibitors. Important synthetic precursors to a variety of vinyl fluorides are (α -fluoro)vinyl sulfones. Herein, we present development of a novel reagent for mild and efficient synthesis of (α -fluoro)vinyl sulfones via the *modified* or *one-pot Julia olefination*. To our knowledge, the use of this convenient methodology for their synthesis is largely unexplored. We have successfully synthesized a new fluorinated reagent for Julia olefination and subjected it to condensation

reactions with a series of carbonyl compounds to obtain (α -fluoro)vinyl sulfones in good to excellent yields (60-90%).

Synthesis and Characterization of Ordered Silicas With Closed Spherical Nanopores

Chin Ming Hui
College of Staten Island

The development of a new generation of lower-dielectric constant (low-k) insulating material has lately become an important issue. Dense silicon is an insulating material with a relatively high dielectric constant (k-value) of about 3.9-4.2. Despite this unusually high figure, silicon has developed into the most commonly used insulating material because it was never imagined that electronic products' sizes would decrease so rapidly to the current nanometer (nm) scale.

Mesoporous materials, that is materials with pores of diameter between 2 and 50 nm, are important in heterogeneous catalysis, and separation of mixtures, for instance by chromatography. The usefulness of these materials stems from their very high specific surface areas (up to about 1200 m² g⁻¹) and high adsorption capacity. Mesoporous materials also became attractive as low dielectric constant insulation materials in electronics. Especially, those with pore closure could be conducted to avoid any contagion.

In our study, silicas with spherical mesopores arranged in face-centered cubic structure (pore diameter 15-26 nm) and body-centered cubic structure were synthesized using Pluronic F127 poly(ethylene oxide)-poly(propylene oxide)-poly(ethylene oxide) triblock copolymer as micellar template. These materials were then characterized by Small-Angle X-ray Scattering and nitrogen adsorption porosimetry. The pore diameter in the face-centered cubic structure was tailored by modifying the synthesis temperature and time. We also found that the spherical pores in both of these structures can be closed by increasing the temperature of a treatment used to burn out the block polymer template.

The Establishment of Cell Line Expressing Sodium Channel Nav. 1.8

Dennis O. Iyekegbe, Jr.
SUNY Albany

Sodium channels are integral transmembrane proteins that allow sodium ions to enter the cell. They are essential for the generation and propagation of action potentials in excitable cells. The availability of Na⁺ channel cDNA has made it feasible to study the structure to function relationship of the channel protein by site directed mutagenesis. A family of nine isoforms has been identified in mammals. Studies in a variety of pain models have revealed two important Na⁺ channel, Nav1.7 and Nav1.8 in nociception. These two isoforms have also been implicated as targets for novel local analgesic agents. There have been few reports on the characterization of Nav1.8. To gain a better understanding of Nav1.8, we plan to create a stable cell line expressing Nav1.8. The Nav1.8 expression vector containing the neomycin (G418) resistance gene will be used for the transfection. Calcium phosphate precipitation method will be used to transfect the human embryonic kidney cells. The neomycin resistance cells will be cultured and examined for the expression of Nav1.8 by electrophysiology.

Analysis of Lipids and Fatty Acids in Nuclear Fractions of NMU Rat Mammary Tumor Cells after Treatment with Dietary Fatty Acids

Brentnol McPherson
Kingsborough Community College

Previous reports have documented the effects of omega-3 and omega-6 fatty acids on cell proliferation in tumor cells. Linoleic acid (LA) (omega-6) has been shown to increase cell proliferation, where as docosahexaenoic acid (DHA) (omega-3) has been shown to decrease proliferation. In this study, we used subcellular fractionation techniques followed by lipid isolation and fatty acid analysis to investigate the mechanism behind these effects. Using cell fractions enriched in nuclei, we are examining the abundance of lipids and fatty acids in treated cells using the methods of thin layer chromatography (TLC) and Gas Chromatography/Mass spectrometry (GC/MS). Cells treated with DHA and LA had a similar pattern for phospholipids with all being present. Cholesterol levels varied from fraction to fraction. Fatty acid analysis revealed that only the nuclear fraction contained arachidonic acid (AA) and that the amount of AA increased 1.5 fold upon treatment with LA. Supported in part by Grants: NIH 62012-04 and NSF DUE 0524965.

Investigating the Localization of PCP Proteins in Migrating MCF-10a Cells

Ujunwa Cynthia Okoye
SUNY Stony Brook

A group of proteins which includes are known to be involved in the beta-catenin independent Wnt signaling pathway, migratory events during development, and the metastasis of tumors. These proteins were primarily identified using genetic techniques that defined their role in these cellular events but provided little insight as to the mechanistic details of these events. When a Scratch Assay is performed on a mono-layer of MCF-10a cells, sheet-like migration of the cells is observed and this makes them a good model. We will be designing and constructing eGFP and mCherry fused lentiviral expression constructs for the set of proteins. Lenti-virus containing these constructs will be generated and used to infect MCF-10a cells to make stable lines. Cells expressing low levels of these fusion proteins will be selected using fluorescence activated cell sorting. Once the cell lines are generated a confluent monolayer will be scratched and the localization of these proteins in the migrating cells will be visualized in real time using the Nikon Delta Vision microscope. The goal of this project is to characterize the localization of these proteins in migrating MCF10a cells. The results of these experiments will be useful in determining the specific role of each protein in migration and may provide additional information about the development of epithelial tumors/carcinomas.

The Social Olfactory in Maternal Separation in Infant Mice

Kia Hope Shine
Syracuse University

The objective for this research is to measure preferences for nest odors in mouse pups ten to fourteen days old. Early Postnatal stress such as inconsistent care taking from the mother can influence infant mice. This current study examines odor preferences in maternally separated mice compared to handled mice. The Maternally Separated infant mice are separated for three hours daily in an incubator away from the mother. The inside of the incubator is 25-27 degree Celsius. On Postnatal day 10 and Postnatal day 14

there will be testing for odor preference. There are Handled infant mice, Maternal Separated Clean infant mice, and Maternal Separated Soiled infant mice. The main basis for this study is to see, if taking away the odor of the mother changes or has an effect on the mouse pups. The underlying question that this study will answer: Is the mother's odor important even if she is not present and what effects does it have on the mouse pups? In this experiment the Maternally Separated Nest Odor did not show any significant effects for familiar odors. Our hypothesis is that the Handled mice will be so attached to their mother that they are going to have an odor preference of the Soiled Hardwood. The Maternally Separated Clean will be more likely to branch off to different odors because they have no real attachment to their mother because they are separated from them three hours a day. The Maternally Separated mice are more likely to have an odor preference of Pine or of the Clean Hardwood shavings. The Maternally Separated Soil will also be able to branch out and smell other odors because they are not attaching to their mother.

Amplification of the Promoter Region of Arabidopsis Terpene Synthase 12

Marlissa Villette
St. John's University

Terpenes biosynthesis is regulated in plant roots. Terpenes are secondary metabolites which aid in the fitness and root production of plants such as Arabidopsis. Terpenes not only are essential to plants, but also beneficial to the everyday life of humans. The extraction of terpenes from plants helps in the development of natural remedies that are used in medicine, as well as in fragrances, flavors and oils. For example diterpene taxol is an anticancer drug which is used in the treatment of breast cancer. Terpenes also serve an active role in the development of plant defenses against insects and microorganisms by the release of volatiles.

Arabidopsis thaliana has been regarded as one of the key model plants in the study of plant molecular biology. It has many scientific advantages which include short seed maturation and a complete gene sequence. Of the stated gene sequences the promoter region of interest is its regulation in diterpene synthesis in plant root tissue. The promoter region is a specific nucleotide sequence in DNA that binds RNA polymerase and indicates where to start transcribing RNA. It can also determine when genes are expressed. In order to study the cell specific tissues we fuse a protein reporter which gives off a green fluorescent or EGFP and a blue color staining that allows you to see the sub cellular compartments within the gene. The promoter and primers used are chosen by polymerase chain reaction (PCR) and a large scale of DNA samples. PCR amplifies the promoter region and gene product. Isolating the promoter region of the root expressed terpene synthase gene TPS12 will be done by the gateway system which is based on a recombinant system. The follow up of the PCR product is integrated into a specific plant transformation vectors to conduct GUS and EGFP in future experiments.

Technology - Orals

OCT: Spectral Domain Versus Time Domain: The Future of Ophthalmic Healthcare

Angelica V. Delgado
St. John's University

Optical coherence tomography (OCT) is an ophthalmic device that provides high resolution of retinal imaging for the aid in early detection, diagnosis and management of ocular diseases (2). Ocular diseases, such as glaucoma, cataract, diabetic retinopathy, age-related macular degeneration and retinitis pigmentosa. There are two types of OCT: the time domain (TD-OCT) and spectral domain (SD-OCT). The time domain, the original version of the OCT, is commonly used in optometric and ophthalmic settings, to detect and prevent vision loss. The SD-OCT delivers higher speed, higher sensitivity and higher resolution. However, physicians question the practicality and the cost of this new technology. To compare and study the SD-OCT, the Topcon 3D OCT-1000, one out of seven manufacturer's of the SD-OCT, was investigated. In this study, over forty patients were examined; providing B-scans of both right and left eyes and studied through images of fluorescein angiography, 2D and 3D retinal thickness map. Although the TD-OCT has greater database and is able to properly diagnosis patients, the SD-OCT provides better image quality. The images taken from the 3D OCT-1000 is able to detect unsuspected findings not normally found under the TD-OCT, such as the Bergmeister's papillae. Overall our findings suggest that the SD-OCT offers better patient care because of the advance image quality and mapping performed, enabling physicians to accurately diagnosis patients. Further investigation and hands on experience needs to be performed in order to accurately assess the importance that the SD-OCT may have in ophthalmic settings, possibly determining causes of certain ocular diseases, thus preventing vision loss.

The KICDAR

Ariel Khaimov

Queensborough Community College, CUNY

In accordance to privacy act an academic freedom a device was required to limit monitoring of instructional faculty under control of the class instructor. The college asked the Technology Department to build a circuit that would shut off the cameras in those classrooms. After my Professor/Instructor Jerry Sitbon built a circuit using the technology in our school and with the milling machine producing those PCB boards in our school which help saved hundreds if not thousands of dollars. As an Summer Intern in my college I was assigned to built these eighteen of these keypad/ timer circuits known as the Kicdar. It took me about 6 months to build the two different circuits but with a few hours a week of work. It was a great Experience I learn how to solder, learn how the components work inside this circuit, how to troubleshoot the circuits which weren't working and at top of that all get a hands on experience.

This system is a simple circuit that will be used to control the cameras. The two circuits the keypad and the timer both work together and help each other by feeding voltage to one another. The timer circuit is connected to a cat 5 cable which is then connected to the cameras. When the code is punched in, the Normally Closed relay turns off the cameras. Depending on how big the capacitor the longer the camera

will be off. We can also change the frequency from 40Hz to 80 Hz to increase the time. After approximated 42 minutes the relay resets itself and turns on the cameras again.

This code lock may be used to switch an alarm on and off, or to open a door lock. An LED on the operating panel indicates the position of the 'lock'. The code is easy to define. Because the operation panel is completely enclosed, it may be used inside and outside the house.

The keypad circuit works when about 9 to 15 volts are apply and the code is punched in. Once the code is punched in the relay turns on and the LED turns on indicating that the circuit is working.

The first thing you need to know about Relays is that a relay contact is a switch. It does not provide power; it simply opens and closes an electrical circuit, just like the light switch on a wall. When the relay is de-energized or turned off there is an electrical connection between Normally Closed and Common. In the off state there is no connection between Normally Open and common. When the relay is energized or turned on the Normally Open and Common makes an electrical connection, and the electrical connection between Normally Common and Common is removed.

A bilateral switch uses a special CMOS circuit called a transmission gate. The circuit behaves as a SPST (single pole/single throw) switch which is under electronic control. When the control signal, or enable, is HIGH, the switch is closed, allowing signals to be transferred between the switch terminals. The switch is 'bilateral' because either terminal can be used as the input. In other words, current flow can be in either direction.

WORKSHOP PRESENTATION DETAILS

SATURDAY, APRIL 5 9:15-10:30 A.M.

The Abstract: The Key That Opens the Scientific Paper

Dr David Cohen, Dean of Richard L. Connolly College of Arts and Sciences and Professor of Biology & Dr. Gladys Palma de Schrynemakers, Assistant Provost, Long Island University

Students attending this workshop will be presented with the basic requirements for preparing a well-organized, effective abstract, one having the following characteristics: According to Day (1979), scientific abstracts are short and simple, seldom more than 250 to 275 words that summarize the problem and the results without including any details of the methodology or mentioning of previous work; moreover, well-prepared abstracts include the research objectives, a short description of the methodology, a summary of the results, and the major findings. The abstract must stand as a summary of the information in the paper (Houghton, 1975) and provide enough information for the readers to evaluate whether it is significant to their research for them to read the entire paper (American National Standards Institute, Inc., 1971). Students will then be presented with examples of well and poorly prepared abstracts and asked to assess each using the criteria set forth during the presentation.

"Why Did I Get Up This Morning?" Recognizing and Understanding the Power of Motivation

Dr. Robin L. Eubanks, University of Medicine and Dentistry of New Jersey

Recognizing and understanding the power of motivation is the theme of this dynamic presentation. We will examine the importance of developing and maintaining a healthy self-esteem and the need to recognize purpose. Participants will be challenged to identify and access personal strengths which can result in an increase in personal productivity. We will recognize the importance of risk taking and discuss the impact of fear in becoming successful. We will introduce the idea of creating, nurturing, and leaning on dreams and visions. Finally, a variety of thought provoking quotations will be presented for purposes of stimulation, humor, and personal evaluation.

Turning Dreamers into Health Professionals: Secrets to Success

Dr. Lynne Holden, Montefiore Medical Center Emergency Medicine Department; Founder & Executive Director of Mentoring in Medicine

Mentoring in Medicine (MIM) is a nonprofit formed in March 2006 by three minority physicians and an educator. Our mission is to increase the diversity of the health care workforce and to promote healthy living. We strive to ignite an interest in health careers and to help students create a strategic plan for graduation from health professional school. Our goal is to create a seamless system of mentorship, academic enrichment and leadership development. In 2007, MIM programs have reached nearly 2500 students and we have recruited close to 500 health care professionals. MIM has been featured in the *NY Times*, *NY Daily News*, *Essence*, *JET*, and the *Amsterdam News*. In this interactive workshop *Turning Dreamers into Health Professionals: Secrets to Success*, MIM covers the essential steps needed to attain admission into health professional school-preparation and presentation. Students receive information about strategic planning during every step of the process. Students also learn the most common pitfalls and how to avoid them.

The Nuts & Bolts of Law School Admission

Sonji S. Patrick, Puerto Rican Legal Defense & Education Fund (PRLDEF)

In this workshop, we'll focus on the admissions process to law school including timelines and in-depth discussion of each component, especially the two components that students have THE MOST control over: GPA and personal essay. We also spend some significant time discussing the LSAT, because this is the source of major anxiety for most pre-law students; and unfortunately, minority students underestimate the preparation needed to get their best score. We therefore discuss in more detail the Law School Admission Council (LSAC) and the Law School Data Assembly Service (LSDAS). We talk about how to choose a law school and about financial aid (We are not financial aid experts, but we can cover the basics). Finally, we emphasize the importance of creating an admissions plan, being proactive, networking and building both the resume and transcript.

SATURDAY, APRIL 5 10:30-11:50 A.M.

An Interdisciplinary Approach to Career Opportunities in Engineering

Dr. Tara M. Ruttle, N.A.S.A. Johnson Space Center

This workshop will discuss an interdisciplinary approach to education, research, and careers in engineering. It will be presented from a biomedical engineering point of view, and will focus on university interdisciplinary academic programs. The speaker will share her personal experience with swapping degree fields and the science/engineering experience in her career. She will also discuss different degree and career paths to explore.

Career Opportunities in Public Health

Dr. Robert L. Jansing, NYS Department of Health, SUNY Albany

The world today is confronted with many diverse and complex public health issues such as emerging infectious diseases including HIV/AIDs, West Nile virus, methacillin-resistant infections, and the threat of bioterrorism. Workplace safety, availability of clean water, suicide prevention, eliminating health disparities and prenatal care are also significant public health concerns. Addressing these challenges requires the combined efforts of a variety of public health professionals including physicians, medical research scientists, epidemiologists and health service researchers. Many universities throughout the United States, have established Schools of Public Health that offer extraordinary opportunities for students interested in careers in public health. There is acute need for highly trained, competent professionals from a variety of disciplines, mathematics, chemistry, biology, and engineering, to address numerous global public health challenges.

This workshop will offer the opportunity to consider if a career in public health might be for you, and offer specific suggestions on how to go about pursuing such a goal. The workshop will include topics such as prerequisites, admission requirements, availability of financial aid, and opportunities for paid summer internships.

Direct & Alternate Pathways to Medical School

Dr. Gerald Soslau, Drexel University College of Medicine

Students may be denied admission to medical school for many different reasons. The major reasons include: lack of clinical/community exposure; grades, and/or; MCAT scores. Students need to be aware of these variables when applying to medical school. Also, many students are unaware of the differences and similarities between osteopathic and allopathic medical schools or their entrance requirements. After this information is discussed we would explore alternate pathways to medical school. There are many different types of post-baccalaureate and graduate programs available to help students improve their academic credentials for application to medical school. It is important to choose a program that will appropriately strengthen their credentials. For some students medical school will never become a reality yet they may still be interested in some other health profession. We will discuss how they should explore these possibilities and what type of graduate programs can help them.

The Ultimate in Goal Setting: Planning for Life Achievement

Pamala Brown-Grinion, Totally "You"-nique School of Charm & Etiquette

Planning for Life Achievement is the ultimate in goal setting for success in life. This workshop will give youth a sense of personal direction in their lives. It is designed to instill the importance of developing a plan, writing it down, and then putting it into action. This workshop is a holistic approach to defining what one's future individual desires are. The objective of this workshop is to give students a tangible understanding and road map of their own personal goals. Also to encourage them to move on even the slightest possibilities instead of the being held hostage by the fear of the impossibilities.

Participants will develop a realistic short-term (today) and futuristic (thru year 2020) plan of action and will then be instructed through self-exploration and group brainstorming on how to implement each goal.

This workshop will help students develop their own strategy for accomplishing their personal goals. Each student will leave this workshop with a personal written plan of action for growth and development for the next 15 to 20 years of their lives.

SATURDAY, APRIL 5

1:30-3:00 P.M.

The Abstract: The Key That Opens the Scientific Paper

Dr David Cohen, Dean of Richard L. Connolly College of Arts and Sciences and Professor of Biology & Dr. Gladys Palma de Schrynemakers, Assistant Provost, Long Island University

Students attending this workshop will be presented with the basic requirements for preparing a well-organized, effective abstract, one having the following characteristics: According to Day (1979), scientific abstracts are short and simple, seldom more than 250 to 275 words that summarize the problem and the results without including any details of the methodology or mentioning of previous work; moreover, well-prepared abstracts include the research objectives, a short description of the methodology, a summary of the results, and the major findings. The abstract must stand as a summary of the information in the paper (Houghton, 1975) and provide enough information for the readers to evaluate whether it is significant to their research for them to read the entire paper (American National Standards Institute, Inc., 1971). Students will then be presented with examples of well and poorly prepared abstracts and asked to assess each using the criteria set forth during the presentation.

"Why Did I Get Up This Morning?" Recognizing and Understanding the Power of Motivation

Dr. Robin L. Eubanks, University of Medicine and Dentistry of New Jersey

Recognizing and understanding the power of motivation is the theme of this dynamic presentation. We will examine the importance of developing and maintaining a healthy self-esteem and the need to recognize purpose. Participants will be challenged to identify and access personal strengths which can result in an increase in personal productivity. We will recognize the importance of risk taking and discuss the impact of fear in becoming successful. We will introduce the idea of creating, nurturing, and leaning on dreams and visions. Finally, a variety of thought provoking quotations will be presented for purposes of stimulation, humor, and personal evaluation.

Turning Dreamers into Health Professionals: Secrets to Success

Dr. Lynne Holden, Montefiore Medical Center Emergency Medicine Department; Founder & Executive Director of Mentoring in Medicine

Mentoring in Medicine (MIM) is a nonprofit formed in March 2006 by three minority physicians and an educator. Our mission is to increase the diversity of the health care workforce and to promote healthy living. We strive to ignite an interest in health careers and to help students create a strategic plan for graduation from health professional school. Our goal is to create a seamless system of mentorship, academic enrichment and leadership development. In 2007, MIM programs have reached nearly 2500 students and we have recruited close to 500 health care professionals. MIM has been featured in the *NY Times*, *NY Daily News*, *Essence*, *JET*, and the *Amsterdam News*. In this interactive workshop *Turning Dreamers into Health Professionals: Secrets to Success*, MIM covers the essential steps needed to attain admission into health professional school-preparation and presentation. Students receive information about strategic planning during every step of the process. Students also learn the most common pitfalls and how to avoid them.

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Funding Your Graduate Experience

Dr. Gina Lee-Glauser, Syracuse University C.A.S.E. Center

How do you find funding sources to support your graduate experiences? This session will highlight the essential elements of writing winning proposals for graduate fellowship applications, and present writing

tips and strategies useful in preparing applications. Come prepared to get funded for your graduate experience!

SATURDAY, APRIL 5

3:30-5:00 P.M.

Balance is Everything!

Dr. Ruth Hart, SUNY Upstate Medical University

When considering a career in the sciences is it possible or even advantageous to pursue concurrently interests in the humanities? Where do literature, poetry, music, history, art, theatre and other performing arts fit into the plans of a future of a biology, physics, or math major? Is it possible to have a non-science major if you're thinking of a pre-med pathway? The pursuit of a degree in science does not necessarily mean "...giving up all the other stuff" and rule out the opportunity to explore other dimensions of learning. For example, approximately 15% of those entering medical school last year had majors in the humanities or social sciences. This workshop will examine how a student can effectively and successfully incorporate their various interests with the goal of enhancing both the personal and professional aspects of their lives. The presenter is a practicing emergency medicine physician with a background in science and the humanities, having undergraduate degrees in both biology and literature.

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KEYNOTE SPEAKER BIOS & PICS

Michele Lezama



Michele Lezama is currently the Executive Director of The National GEM Consortium, a 501c(3) organization, founded at the University of Notre Dame, dedicated to increasing the number of under-represented individuals who pursue and receive a masters or PhD in engineering or science by providing full fellowships and holding informational programming on the application and graduate school experience.

Lezama began her post as Executive Director of GEM after serving over 5 years as Executive Director of the National Society of Black Engineers (NSBE), an organization whose mission is to increase representation in the science, technology, engineering and math (STEM) fields by providing programming, scholarships, and career placement from pre-college students through professionals. Lezama is credited for significantly increasing NSBE's operational efficiency, programmatic efforts, and financial reserves. Most notably she turned around the organization's financial position from risking payroll to acquiring a new headquarters facility tripling the organization's capital position and creating a long-term investment structure. Under Lezama's leadership, NSBE received the 2003 Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring awarded by the White House's Office of Science and Technology.

Prior to NSBE, Lezama was the Director of Satellite Scrambling Operations at Home Box Office (HBO), a Time Warner Company, and prior to HBO she served as the Associate Director of Broadcast Operations and System Integration at Columbia Broadcasting System (CBS). Lezama was involved in a number of exciting technical and financial projects during her media career, specifically the creation of on-line scheduling for on-air programs and commercials, the build-out of the technical studio for CBS' Late Night with David Letterman, and multi-plexing of the HBO and Cinemax brands.

Prior to Lezama's media career she was an engineer with IBM in their Poughkeepsie, Manhattan and Brooklyn facilities. Lezama also held co-op positions with Raytheon and Texas Instruments.

Lezama earned her BS in Industrial Engineering at Northeastern University and both her MS in Industrial Engineering and MBA in Finance and Accounting from Columbia University.

Tara Ruttle



Tara is currently the lead engineer for the NASA Human Research Facility, which is a facility onboard the International Space Station (ISS) that supports numerous Life Sciences experiments. She was born and raised in Louisiana before obtaining a BS degree in Biology and an MS in Mechanical Engineering from Colorado State University (CSU), where she was also a Ronald McNair Scholar. She completed her PhD in Neuroscience in 2007 from University of Texas Medical Branch.

Tara began to work for NASA in Jan 2001, where she began her career as a project engineer for the exercise bicycle that's currently on the ISS. She's always wanted to work for the US Space Program, particularly for the Johnson Space Center, where the focus is on human presence in space and manned missions. Since she's always loved Biology and Physiology, she began heading for a career in Life Sciences. There is something very unique about the microgravity environment that causes distinct changes in human physiology from the systems level, all the way down to the cellular level. Engineering design challenges for unique hardware used in space also become more intense when accounting for the absence of a gravity vector. Tara enjoys her work at the Johnson Space Center in Houston, and she also enjoys meeting and working with students from the TriO programs, as well as from programs specifically designed to encourage education in Science and Engineering.

Dr. Mark Hernandez



After several years of professional civil engineering practice, Mark Hernandez joined the University of Colorado faculty in 1996, and was tenured 2001. He currently serves as a faculty director of the Colorado Diversity Initiative, which coordinates major diversity efforts among major science, math, and engineering departments with focus on promoting underrepresented students through graduate schools and into the professorate. CU-Boulder has been successful with its diversity efforts in graduate education; since 1996, CU-Boulder has awarded more than 80 PhD's to underrepresented students in science, math, and engineering. At least 17 of these PhD recipients are in tenure-track faculty positions, and at least 10 more have postdoctoral fellowships leading to faculty positions.

Dr. Hernandez maintains an active environmental microbiology research program which focuses on the ecology, disinfection and remediation of polluted air and water. He won the Water Environment Foundation's Canham Award to support technology transfer between the US and England, and was a recent recipient of a National Science Foundation early CAREER award. Dr. Hernandez holds a US patent for wastewater reclamation, and has published over 40 archival journal articles. During his tenure at Colorado, Professor Hernandez has mentored numerous undergraduate, graduate and post-doctoral fellows from student groups that have been historically underrepresented in engineering and the sciences.

Conference Schedule

FRIDAY, APRIL 4

Registration	12-8 p.m.	Conference Center
CSTEP Student Lounge (CSTEP students networking opportunities, raffles, icebreakers)	4-6 p.m.	Dollar Island
CSTEP Professional Development Training Session (New CSTEP staff participate in State Education training...)	4-6 p.m.	Abenia
Judges Meeting	4-6 p.m.	Evelley
Dinner Banquet Keynote Address: Michelle Lezama, National GEM Consortium	6:30-8:30 p.m.	Bellvue
CSTEP Coffee House	8:30-11 p.m.	Dollar Island
APACS Reception	9 p.m.-midnight	Sagamore Parlor
CSTEP Gospel Choir Rehearsal	10p.m.-midnight	Abenia

SATURDAY, APRIL 5

Breakfast	7-8:30 a.m.	Sagamore/Trillium
Registration	8 a.m. –noon	Conference Center
NYSED Professional Staff Meeting	7:30-8:45 a.m.	Abenia
Student Poster Competition (closed to the public for judging)	8:30-11:00 a.m.	Bellvue/Nirvana
Student Oral Presentations	9-10:20 a.m.	
<i>Natural Sciences I</i>		Evelley
<i>Eser Akturk (New York University)</i>		
<i>Maggie He (City College)</i>		
<i>Chin Ming & Michael Kruk (College of Staten Island)</i>		
<i>Natural Sciences II</i>		Diamond
<i>Ujunwa Cynthia Okoye (SUNY Stony Brook)</i>		
<i>Emmanuel Asare (Clarkson University)</i>		
<i>Dennis Iyekegbe Jr. (SUNY Albany)</i>		
Concurrent Workshops	9-10:20 a.m.	
<i>The Abstract: The Key That Opens the Scientific Paper</i>		Dollar Island East
<i>Dr. David Cohen & Dr. Gladys Palma de Schrynemakers, Long Island University</i>		
<i>Why Did I Get Up This Morning? The Power of Motivation</i>		Triuna
<i>Dr. Robin Eubanks, University of Medicine & Dentistry of New Jersey</i>		
<i>Turning Dreamers Into Health Professionals: Secrets to Success</i>		Abenia
<i>Dr. Lynne Holden, Mentoring in Medicine, Montefiore Medical Center</i>		
<i>The Nuts & Bolts of Applying to Law School</i>		Dollar Island West

Sonji S. Patrick, Puerto Rican Legal Defense & Education Fund (PRLDEF)

Student Oral Presentations	10:30-11:50 a.m.	
<i>Natural Sciences III</i>		Evelley
Jessa Davis (St. Lawrence University)		
Carlos Bu (Monroe Community College)		
MaryAnn Garcia (SUNY Optometry/City College)		
<i>Natural Sciences IV</i>		Empire Room
Alain Goldman (LaGuardia Community College)		
Kia Hope Shine (Syracuse University)		
Brentnol McPherson (Kingsborough Community College)		
Concurrent Workshops	10:30-11:50 a.m.	
<i>An Interdisciplinary Approach to Careers in Engineering</i>		Abenia
<i>Dr. Tara M. Ruttley, NASA Johnson Space Center</i>		
<i>Career Opportunities in Public Health</i>		Triuna
<i>Dr. Robert L. Jansing, NYS Department of Health, SUNY Albany</i>		
<i>Direct & Alternate Pathways to Medical School</i>		Dollar Island East
<i>Dr. Gerald Soslau, Drexel University College of Medicine</i>		
<i>The Ultimate in Goal Setting: Planning for Life Achievement</i>		Dollar Island West
<i>Pamala Brown-Grinion, Totally "You"-nique School of Charm & Etiquette</i>		
Student Posters Open to the Public	11:00 a.m.-12 p.m.	Bellvue/Nirvana
Buffet Lunch	12-1:30 p.m.	Sagamore/Trillium
4th Annual Graduate & Professional Opportunities Fair	1-4:30 p.m.	Nirvana/Wapanak
Student Oral Presentations	1:30-3 p.m.	
<i>Natural Sciences IV</i>		Diamond
Alicia Bowen (SUNY College at Old Westbury)		
Kristina Foulis (College of Staten Island)		
Marlissa Villette (St. John's University)		
<i>Human Services/Social Sciences</i>		Evelley
Judith Belizaire (Long Island University)		
Daniel Bonnet (Manhattanville College)		
Nicholas Calder (Cornell University)		
Onmia Ibrahim (Fordham University)		
Concurrent Workshops	1:30-3:00 p.m.	
<i>The Abstract: The Key That Opens the Scientific Paper</i>		Dollar Island East
<i>Dr. David Cohen & Dr. Gladys Palma de Schrynemakers, Long Island University</i>		
<i>Why Did I Get Up This Morning? The Power of Motivation</i>		Triuna
<i>Dr. Robin Eubanks, University of Medicine & Dentistry of New Jersey</i>		

Turning Dreamers Into Health Professionals: Secrets to Success Dollar Island West
Dr. Lynne Holden, Mentoring in Medicine, Montefiore Medical Center

Funding Your Graduate Experience Adirondack
Dr. Gina Lee-Glauser, Syracuse University C.A.S.E. Center

An Interdisciplinary Approach to Careers in Engineering Abenia
Dr. Tara M. Ruttley, NASA Johnson Space Center

Student Oral Presentations 3:30-5:00 p.m.

Technology Evelley
Angelica Delgado (St. John's University)
Ariel Khaimov (Queensborough Community College-CUNY)

Concurrent Workshops 3:30-5 p.m.

Balance is Everything! Abenia
Dr. Ruth Hart, SUNY Upstate Medical University

Career Opportunities in Public Health Triuna
Dr. Robert L. Jansing, NYS Department of Health, SUNY Albany

Direct & Alternate Pathways to Medical School Dollar Island East
Dr. Gerald Soslau, Drexel University College of Medicine

The Nuts & Bolts of Applying to Law School Dollar Island West
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CSTEP Gala: A Night of Elegance on Lake George 6:30-9 p.m. Bellvue
Keynote Speaker: *Dr. Tara M. Ruttley, N.A.S.A. Johnson Space Center*
Awards Presentations
Poster Competition: *Dr. Henry Teoh, SUNY College at Old Westbury*
Oral Presentations: *Dr. Gladys Palma de Schrynemakers, Long Island University*
Celebrate With Dance! 9 p.m.- 1 a.m. Tennis Center

CSTEP Gospel Choir Rehearsal 10 p.m.-midnight Abenia

SUNDAY, APRIL 6

Ecumenical Service/CSTEP Choir 8-9 a.m. Evelley

Spirit Brunch/Closing Plenary Session 9 a.m.-12:00 p.m. Bellvue

Presentations

Keynote Speaker: *Dr. Mark Hernandez, University of Colorado at Boulder*

Roll Call

Check Out and Departure

16th Annual CSTEP Statewide Conference
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