



Academy of Applied Science



**51<sup>st</sup> Annual**

**Southeastern Michigan**

**Junior Science and  
Humanities  
Symposium**

**Program**  
**2015**

**WAYNE STATE  
UNIVERSITY**

**McGregor Memorial Conference Center  
Detroit, Michigan**

**March 5<sup>th</sup> and 6<sup>th</sup>, 2015**

**51<sup>st</sup> Annual**

**SOUTHEASTERN MICHIGAN**

**JUNIOR SCIENCE AND HUMANITIES**

**SYMPOSIUM**

Thursday and Friday, March 5<sup>th</sup> and 6<sup>th</sup>, 2015

*SPONSORED BY*

**WAYNE STATE UNIVERSITY**  
**College of Education**

*In cooperation with*

U.S. Army Research Office - Research Triangle, NC

U.S. Naval Research Office

U. S. Air Force Research Office

U.S. Army Tank - Automotive Command  
Research, Development, and Engineering Center  
Warren, MI

Academy of Applied Science - Concord, New Hampshire

National Association of Secondary School Principals

## **OBJECTIVES OF THE JUNIOR SCIENCE AND HUMANITIES SYMPOSIUM PROGRAM**

- 1. To promote research and experimentation in the sciences, mathematics and engineering at the high school level.*
- 2. To recognize the significance of research in human affairs and the importance of humane and ethical principles in the applications of research results.*
- 3. To search out talented youth and talented teachers; recognize their accomplishments at symposia and encourage their continued interest and participation in the sciences, mathematics, and engineering.*
- 4. To expand the horizons of research-oriented students by exposing them to opportunities in the academic, industrial, and governmental communities.*
- 5. To increase the number of future adults capable of conducting research and development.*

In order to accomplish these objectives, we enlist the active participation of our local communities in improving the education of our children.

### **Publishing Opportunity**

Students who submitted a paper for presentation at this year's JSHS are encouraged to submit their paper for publication in JOURNEYS – *Journal of Youths in Science*. Students planning to submit their paper for publication should first consult with their research mentor(s) and anyone else who collaborated in their research.

**Before submitting a paper** for publication in JOURNEYS students should check the journal's website at <http://www.journys.org/> and closely follow the instructions under "Submission."

## ADMINISTRATION OF JSHS

**Dr. Maria Madalena Ferreira**, Director and Coordinator of JSHS  
Associate Professor and Coordinator of the Science Education Program  
College of Education, Wayne State University

## JSHS ADVISORY BOARD

**Dr. Monica Brockmeyer**  
Assoc Provost Academic Success  
VP Academic Affairs  
Wayne State University

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Associate Dean and Professor, Chemistry  
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Wayne State University

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Wayne State University

**Dr. Russell L. Finley**  
Professor  
Center for Molecular Medicine & Genetics  
Wayne State University

**Dr. John Goudie**  
Kalamazoo Area Mathematics and  
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**Dr. Patricia Hanlan**  
Detroit Country Day

**Dr. Padu Karur**  
Associate Professor, Physics  
Wayne State University

**Dr. Daniel Kashian**  
Assistant Professor, Biological Sciences  
Wayne State University

**Ms. Alycia Meriweather**  
Director, Math/Science Center  
Detroit Public Schools

**Mr. Kevin Rashid**  
Honors College  
Wayne State University



# *Welcome*

*from the JSHS Director  
Dr. Maria Madalena Ferreira*

Dear Students, Teachers, Parents and Colleagues,

It is my great privilege to welcome you to the 51<sup>th</sup> annual Junior Science and Humanities Symposium (JSHS) of Southeast Michigan. Once again we have a group of very talented young men and women from schools in southeast Michigan who will share their research with us. I would like to thank the teachers and mentors for the guidance they provided students throughout the research process and their parents for the support that such activities entail.

An event such as this one cannot be accomplished by one person alone and I would like to express my gratitude to those who every year help make this event possible: the members of the Advisory Board, judges, speakers and the administration of the College of Education at Wayne State University. A special thanks to Ms. Sandra Yarema for her help in the planning and running of the symposium.

I would like to take this opportunity to give you a short overview of the history of the JSHS, for those of you who might not be familiar with this wonderful program. The JSHS was established in 1958 by the U. S. Army Research Office. In 1995 the Office of Naval Research and in 1997 the U. S. Air Force joined the army in funding the symposium. However, the Academy of Applied Sciences administers the funds and organizes the National Symposium every year.

The primary aim of the JSHS is to promote research among high school students. Every year, more than 10,000 students and their teachers participate in forty-eight regional symposia held on university campuses across the country and in Alaska, Puerto Rico and the Department of Defense schools in Europe and the Pacific. Students presenting at the regional symposia have the opportunity to receive significant awards in the form of scholarships, payable to the university of their choice. The first, second and third student finalists at each of the regional symposium receive \$2000, \$1500, and \$1000 respectively, and all five finalists are invited to attend the National JSHS free of charge. The two finalists from each regional symposium also present their research at the National JSHS where they have the opportunity to receive additional awards. The three finalists in each of the categories at the National JSHS receive \$12,000.00, \$8,000.00 and \$4,000.00 respectively in scholarships. For additional information about the JSHS please visit: <http://coe.wayne.edu/ted/science/jshs/>

Thank you for participating in this year's symposium. I hope your experience is a memorable one.

A handwritten signature in black ink, appearing to read 'M. M. F.' with a stylized flourish.

Maria Madalena Ferreira, Director JSHS

## Welcome from the Dean

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### **Russell Whitman, Ph.D.**

**Interim Dean and Professor  
College of Education  
Wayne State University**

Dean Whitman joined the faculty of the Psychology Department at Wayne State University in 1973, where he is a professor of clinical psychology, served as Director of Training for the APA accredited program in clinical psychology and then as the Department Chair until recently.

In his many roles in the Psychology Department, Dean Whitman was instrumental in the following projects:

- Proposed an expansion of the Psychology Clinic Training facilities which resulted in a \$2.5 million new facility
- Increased the department's research facilities by five laboratories.
- Developed a competitive enhancement proposal which established two new neuroscience faculty lines and funding for an additional six graduate students.
- Developed annual workshops in conjunction with the Michigan State Psychological Association.
- Developed a Psychology Alumni Association which works with the department to plan annual alumni fund raising events, resulting in the establishment of three student award funds.

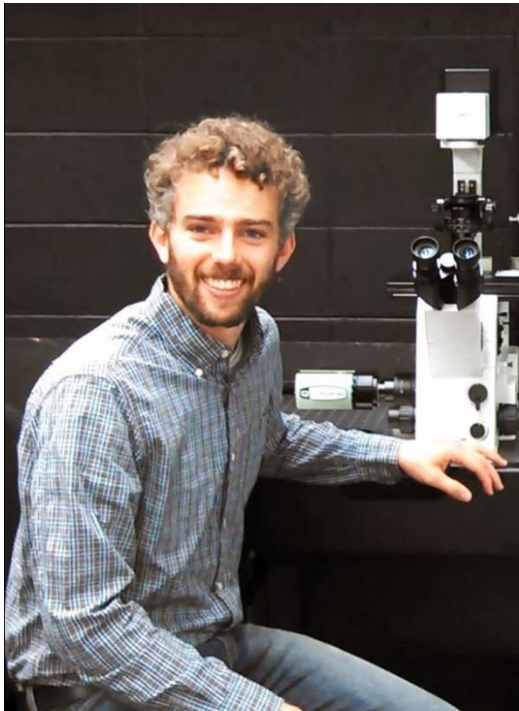
His many research and training projects have been funded by nearly three million dollars in grants from agencies such as the Ethel and James Flinn Family Foundation and the State of Michigan.

Dean Whitman is the author of two books, and a contributing author of four book chapters and 42 articles. He is Associate Editor of the *Psychology Journal*, and has served on many program review committees.

Dean Whitman will provide the welcome remarks at the dinner banquet on Thursday.

## Keynote Speaker

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### **Christopher Kelly, Ph.D.**

**Assistant Professor  
Physics Department  
Wayne State University**

In 2013 Dr. Kelly joined the faculty in the Physics Department at Wayne State University where he teaches courses in optics and conducts research that integrates physics, biology, and chemistry.

Professor Kelly's degrees include a BA in physics from Oberlin College, a MS in Electrical Engineering from the University of Michigan, and a Ph.D. in applied physics also from UM.

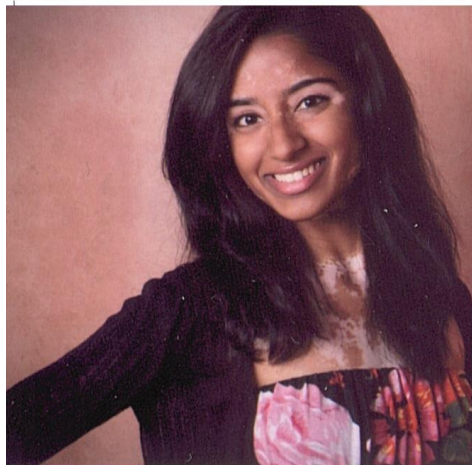
During his Ph.D. in applied physics at the University of Michigan, Dr. Kelly focused his research on biological processes. Later, during his postdoctoral work at Cornell University he was able to incorporate cleanroom nanofabrication to create methods of concentrating light for deciphering individual clusters of receptors on the surface of immune cells.

Presently Professor Kelly is creating new microscopy methods to understand the fundamental properties of biological membranes. He is the director of the Richard Barber Interdisciplinary Summer Research Program and the active mentor of graduate and undergraduate students in research integration physics, biological, and chemical principles.

At the dinner banquet on Thursday Professor Kelly will discuss his research in a presentation titled, *Manipulating Light to Observe Nanoscale Biology*.

## Where is She Now?

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**Ankita Nallani**  
**Past JSHS Finalist**

Ankita Nallani is a 2012 JSHS finalist who is currently a junior at Washington University in St. Louis where she plans to graduate in 2016 with a Bachelor of Science in Biology.

In addition to focusing on her studies in biology, Ankita is very involved in many activities related to neuroscience and medicine including:

- **Undergraduate Research:** Ankita has been working in the same neuroscience research lab at Henry Ford Hospital each summer for six years, and has co-authored two published papers and presented the research at several symposia. Her stroke research experience has helped further her interest in and appreciation for neuroscience, medicine, and research.
- **Synapse:** Synapse is the premier neuroscience outreach group at Washington University. Ankita is the Director of Synapse 101, a program that focuses on spreading neuroscience awareness and interest to elementary and middle school students by engaging them in fun, hands-on demonstrations.
- **St. Louis Area Brain Bee:** The Brain Bee is a fun neuroscience competition for high school students. Ankita was a finalist in high school, so she enjoys working with a professor to organize the competition each spring.
- **Emergency Medical Technician:** Ankita became EMT-B certified and has learned how to treat patients in emergency situations.

She is also very involved on her campus as a resident advisor, member of the a cappella group After Dark, and a dancer and performer in several cultural shows on campus.

At the luncheon on Friday, Ankita will discuss the ways in which her participation in the JSHS has impacted her experiences in college and future research interests.



## Interlude with Music

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**Jaywaun Johnson, guitar/bass**



**Jaylyn Johnson, guitar/bass**



Brothers Jaywaun and Jaylyn Johnson two accomplished musicians from the Community Music School in Detroit. Between the two, they play guitar, drums, violin, bass and banjo. Jaywaun, is a student at the Detroit School of Arts and plays guitar with the MSU Jazz Ensemble. Jaylyn, who attends Henry Ford Academy, studies guitar in the AMP program. The brothers can frequently be seen performing at Detroit's Eastern Market, putting their entrepreneurial and performance skills to the test. When asked what their most crowd-pleasing songs are, Jaylyn cites "'Old Joe Clark,' 'Swallow Tail Jig' and 'Cripple Creek.'"

Jaywaun and Jaylyn will be joined by Keion Jones on drumset to play in the atrium during the poster session and interlude on Thursday evening.

# Campus Tour

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## Physics and Astronomy Department



The Department of Physics and Astronomy at Wayne State University offers a selection of undergraduate and graduate study programs, including BA in Astronomy; BS in Physics and BS in Biomedical Physics.

At the graduate level students may choose MS, MA, and Ph.D. degrees in physics. These degree programs are designed to provide students with the broad knowledge and problem solving skills that are needed in order to be a productive physicist in an academic, government, or industrial environment. The programs accommodate students with varying undergraduate backgrounds and are designed to provide maximum flexibility. At the doctoral level, specializations are offered in the areas of nuclear physics, high energy physics, condensed matter physics, astrophysics, atomic physics, materials science, optics, mathematical physics, quantum field theory, and applied physics. For more information visit: <http://physics.clas.wayne.edu/index.php>

On Friday morning, students and guests will be able to visit some of the labs in the Physics Department and a presentation on the Quark Gluon Plasma. Visitors will participate in solar viewing during which they will be able to get pictures of the sun on their cell phone.

## Undergraduate Research at Wayne State University

<http://undergradresearch.wayne.edu/index.php>

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The Office of Undergraduate Research (OUR) at Wayne State University provides funds to undergraduate students from disciplines across the university – hard sciences, social sciences, performing arts and humanities – to participate in undergraduate research. Undergraduate research puts theory into practice as students work on projects and are mentored by full-time faculty who are leaders in their field. The funds help cover students' research activities as well as travel expenses to present their research at local, regional and national conferences.

At the luncheon on Friday Jasmine Roberson from the College of Engineering will discuss research opportunities for undergraduate students at WSU. The following two students will discuss their research:

**Christian Oliver Avila**, a junior in Biomedical Engineering (concentration in Biomaterials), will talk about neural tissue engineering using hyaluronic acid electrospun fibers and topographic cues to direct neurite outgrowth of chick embryo dorsal root ganglia.

**Mehon Rahman**, is a junior in Biomedical Engineering and vice president of the Biomedical Engineering Society at Wayne State. Mehon's research focuses on the effect that topographical and adhesive cues have on neuronal regeneration.

## **PROGRAM**

**THURSDAY AND FRIDAY, MARCH 5<sup>th</sup> AND 6<sup>th</sup>, 2015**

**THURSDAY, MARCH 5<sup>th</sup>, 2015**

***2:30 p.m.- 3:30 p.m.***

### **REGISTRATION**

Lobby  
McGregor Memorial Conference Center  
Wayne State University

***3:30 p.m. - 4:00 p.m.***

### **OPENING SESSION**

Room BC, First Level, McGregor Conference Center

#### ***PRESIDING:***

**Dr. Maria Madalena Ferreira**, Director - JSHS  
Associate Professor of Science Education  
College of Education  
Wayne State University

#### ***WELCOME/OVERVIEW OF WAYNE STATE UNIVERSITY:***

**Dr. Sharon Elliott**, Past Assistant Dean of Teacher Education  
College of Education, Wayne State University

#### ***ORIENTATION:***

**Dr. Maria Madalena Ferreira**  
JSHS Director and Coordinator

***4:00 p.m.- 5:30 p.m.***

### **PRESENTATION OF STUDENT PAPERS**

McGregor Conference Center

## STUDENT PRESENTATIONS

### SECTION I ROOM E, McGREGOR

**MODERATOR:**        **Dr. Jennell White**, School of Medicine – Wayne State University

#### *STUDENT PRESENTERS:*

**Annush Vejalla**

*The Effect of miRNA let-7d on Hypoxic CNS Pericytes*

**Margaret Anderson**

*The Role of the Motor Protein, KIF13a, in Regulating the Intracellular Transport of MHCII*

**Patrick Chen**

*A Direct Visualization of the Interaction Between Oxidative Stress Response Factors and Carcinogens within Drosophila*

**Jorge Ochoa**

*Effects of Parasympathetic and Sympathetic Neurotransmitters on Neurotrophic Factor Production in Cardiac Muscle Cells*

**Kevin Bi**

*Effect of Fibrin (ogen) Engagement of  $\alpha_{m}\beta_{II}$  (uLs-1) or Pre Inflammatory Polarization of Macrophage*

#### *JUDGES:*

**Dr. Jennell White**, School of Medicine – Wayne State University

**Dr. Jyoti Nautiyal**, Biology Department, Wayne State University

**Anna Boegehold**, Biology Department, Wayne State University

**Mr. Raymond Womack**, Mechanical Engineer, TARDEC

## SECTION II ROOM F, MCGREGOR

**MODERATOR:** Dr. Christy Chow, Chemistry Department – Wayne State University

### *STUDENT PRESENTERS:*

**Jaikishan Prasad**

*Relative Abundance of Intracellular Triacylglycerin of Wild and Lab Yeast Strains*

**McKinzie Ervin**

*Construction of a Reporter Plasmid for Protein Surface Display in the Yeast *Saccharomyces Cerevisiae**

**Christopher Chen**

*[C<sub>3</sub>mpy][NTf<sub>2</sub>] Ionic Liquid Electrolyte Based Amperometric Multi-Gas Sensing*

**Kathryn Hamilton**

*Investigating Inhibitory Effects of Curcumin in L929 Cells*

**Yi-jiao Song**

*Low-Molecular Weight Organic Acids Decrease Tetracycline Sorption on Biochar*

**Julia Trombley**

*Analyzing Gallium Nitride nanowires in Various Crystal Structures and Related Growth Parameter*

### *JUDGES:*

**Dr. Christy Chow**, Chemistry Department, Wayne State University

**Dr. Roger Pique-Regi**, Center Molecular Medicine/Genetics, Wayne State University

**Steven Horne**, Center Molecular Medicine/Genetics, Wayne State University

**Mr. Carl Holmblad**, Mechanical Engineer, TARDEC

### **SECTION III ROOM G, McGREGOR**

**MODERATOR:**       **Dr. Angela Trepanier**, School of Medicine, Wayne State University

#### **STUDENT PRESENTERS:**

**Michelle Zhang**

*Construction of a Broad-Host-Range Vector for Heterologous Expression of Medicinal Natural Products*

**Michael Shao**

*A Transcriptional Analysis of Heterogeneity in Murine AgRP and MC4R Neurons within the Murine Appetite Control Circuit*

**Corey A. Shafer**

*Cellular Toxicity of Mutant Forms of the Tau Protein*

**Isabel J. Hsu**

*Effect of Cucumber Fruit Peel Extracts on Inhibition of Phytophthora Capsici growth and Infection*

**Sukhnayak Sohi**

*The Computation of a Novel Ontology of ZEBOV and Treatment Regimens*

#### **JUDGES:**

**Dr. Angela Trepanier**, School of Medicine, Wayne State University

**Dr. Kezhong Zhang**, School of Medicine, Wayne State University

**Jamie Stafford**, School of Medicine, Wayne State University

**Mr. Greg Chappelle**, Engineer, TARDEC

## SECTION IV ROOM H, MCGREGOR

**MODERATOR:** Dr. David Cinabro, Physics Department – Wayne State University

### *STUDENT PRESENTERS:*

**Jenny Choi**

*X of Y Constructions: Content vs. Containing and Processing Costs*

**Ed Fenwick**

*The Longevity of Carbon, Graphite, and Silver Based Strain Gauges*

**Raehanna Ahmed**

*Flood Prevention System (Raeflector)*

**Rebecca Karl**

*Building a Small Radio Telescope to Observe the Microwave Radiation from the Sun*

**Anthony Shinn**

*Synthesis of Strontium Titanate for Application in Dye-Sensitized Solar Cells*

**Jennie Li Yang**

*The Rapid Sintering and Retarded Grain Growth of Yttria-Stabilized Tetragonal Polycrystalline Zirconia Under Alternating Current*

### *JUDGES:*

**Dr. David Cinabro**, Physics Department, Wayne State University

**Dr. Karur Padmanabhan**, Physics Department, Wayne State University

**Dr. Douglas Rose**, Physicist, TARDEC



## **SECTION V ROOM I, McGREGOR**

**MODERATOR:** Dr. Ann Sodja, Biology Department, Wayne State University

### **STUDENT PRESENTERS:**

**Tariq Mekkaoui**

*Assessing Chiropteran Activity in Southeastern Michigan Using Spectrographic Analysis in Relation to Weather and Habitat Composition*

**Lydia Wang**

*The Effect of Developmental Gene Expression on Neuron Arbor Morphology in Circadian Timekeeping in Drosophila Melanogaster*

**Kiana Sadri**

*The Effect of the Bacteriophage Virus on E.Coli Contaminated Ground Beef*

**Carolyn Hamman**

*The Comparative Outcome of Two Strains of Thalassiosira Pseudomonas Grown at 20°*

**Peter Farha**

*Cloning Cell-Specific Promoters for Adeno-Associated Viruses (AAV)*

### **JUDGES:**

**Dr. Haidong Gu**, Biology Department, Wayne State University

**Dr. Ann Sodja**, Biology Department, Wayne State University

**Ms. Andrea Simon**, Computer Scientist, TARDEC

## **SECTION VI ROOM I, McGREGOR**

**MODERATOR:** Dr. Russell Finley, School of Medicine – Wayne State University

### **STUDENT PRESENTERS:**

**Elizabeth Jakubowski**

*A Study of Demographic Factors in Low Back Pain Patients*

**Frank Wang**

*Identification of MEG Imaging Biomarkers for Schizophrenia and its Subtypes*

**Jamieson Pirochta**

*The Regulation of Estrogen Signaling in the Absence of Tumor Suppressors LKB1 and PTEN in the Uterine Stoma*

**Brenda Nguyen**

*Spastin Sequencing for Patients with Hereditary Spastic Paraplegia*

**Ashi Arora**

*Interaction Between CD47 and EGF Receptors in Breast Cancer Stem Cells*

### **JUDGES:**

**Dr. Russell Finley**, School of Medicine, Wayne State University

**Dr. Siddhesh Aras**, Center Molecular Medicine/Genetics, Wayne State University

**Whitney Lee**, School of Medicine, Wayne State University

***5:30 p.m.- 6:30 p.m.***

**INTERLUDE – Community Arts Atrium**

Student Poster Presentations

**Music by students from the Community Music School, Detroit**

***6:30 p.m.- 8:30 p.m.***

**BANQUET SESSION**

**Room LM – Lower Level, McGregor Conference Center**

***PRESIDING:* Dr. Maria Madalena Ferreira**  
Director, JSHS

***WELCOME:* Dr. Russell Whitman**  
Dean, College of Education

***KEYNOTE SPEAKER:* Dr. Christopher Kelly, Physics Department, WSU**

***TOPIC:*                   *Manipulating Light to Observe Nanoscale Biology***

***ANNOUNCEMENT OF FRIDAY'S STUDENT PAPERS:***

**Dr. Maria Madalena Ferreira, Director, JSHS**

## FRIDAY, MARCH 6, 2015

**8:30 a.m. - 9:00 a.m.**

### **CONTINENTAL BREAKFAST**

Lobby - McGregor Memorial Conference Center  
Wayne State University

**9:00-11:45 a.m.**

### **CAMPUS TOUR:**

*(wait in breakfast area for directions)*

**9:30 a.m. - 11:30 a.m.**

### **Final Judging**

McGregor Conference Center, Room I

*Moderator:*

**Dr. Thomas Edwards**, Associate Dean of Research and Professor,  
Mathematics Education - Wayne State University

*Judges:*

**Dr. Dan Kashian**, Biology Department – Wayne State University  
**Dr. Arun Anantharam**, Biology Department – Wayne State University  
**Corey Krabbenhoft**, Biology Department – Wayne State University

**11:45 p.m. - 2:00 p.m.**

### **LUNCHEON BANQUET**

Room BC – First Level, McGregor Conference Center

*PRESIDING:*

**Dr. Maria Madalena Ferreira**  
College of Education

*WELCOME:*

**Dr. Thomas Edwards**  
Associate Dean of Research, College of Education

*SPEAKERS:*

**Jasmine Roberson**, College of Engineering, Wayne State University  
*Undergraduate Research Opportunities Program (UROP) – WSU*

*TOPIC:*

Ms. Roberson will discuss research opportunities for undergraduate students at WSU.

**Christian Oliver Avila & Mehon Rahman**

*TOPIC:*

The role of topographical and adhesive cues on neuronal regeneration.

**Ankita Nallani** – *Where is She Now?*

*TOPIC:*

Ankita Nallani, finalist at the 2012 JSBS will talk about her research experiences during high school and how her participation in the JSBS impacted her college experiences and future research interests.

***1:30 p.m. - 2:15 p.m.***

**CLOSING SESSION**

***PRESIDING:***        **Dr. Maria Madalena Ferreira**  
Director, JSHS

***AWARDS:***            **Presentation of Student Speaker Awards**  
Dr. Maria Madalena Ferreira, Director

***PRESENTATION FROM STUDENT FINALIST***



## STUDENT RESEARCH PAPERS

Name	School	City
Raehanna Ahmed	Dearborn Center for Math, Science & Technology	Dearborn Heights
Asylah Alghazali	Dearborn Center for Math, Science & Technology	Dearborn Heights
Margaret Anderson	Grand Rapids Catholic Central	Grand Rapids
Ashi Arora	Novi High School	Novi
Kevin Bi	Okemos High School	Okemos
Christopher Chen	Troy High School	Troy
Patrick Chen	Detroit Country Day	Beverly Hills
Jenny Choi	Okemos High School	Okemos
McKinzie Ervin	Kalamazoo Area Math & Science Center	Kalamazoo
Peter Farha	Grand Rapids Catholic Central	Grand Rapids
Edward Fenwick	Kalamazoo Area Math & Science Center	Kalamazoo
Kathryn Hamilton	Grand Rapids Catholic Central	Grand Rapids
Carolyn Hamman	Kalamazoo Area Math & Science Center	Kalamazoo
Isabel Hsu	Crestwood High School	Dearborn Heights
Elizabeth Jakubowski	Grand Rapids Catholic Central	Grand Rapids
Rebecca Karl	Grand Rapids Catholic Central	Grand Rapids
Tariq Mekkaoui	Crestwood High School	Dearborn Heights
Brenda Nguyen	Grand Rapids Catholic Central	Grand Rapids
Jorge Ochoa	Kalamazoo Area Math & Science Center	Kalamazoo
Jamieson Pirochta	Grand Rapids Catholic Central	Grand Rapids
Jaikishan Prasad	Okemos High School	Okemos
Kiana Sadri	Detroit Country Day	Beverly Hills
Corey Shafer	Grand Rapids Catholic Central	Grand Rapids
Michael Shao	Detroit Country Day	Beverly Hills
Anthony Shinn	Okemos High School	Okemos
Sukhnayak Sohi	International Academy East	Troy
Yi-jiao Song	Okemos High School	Okemos
Julia Trombley	Groves High School	Beverly Hills
Anuush Vejalla	Detroit Country Day	Beverly Hills
Frank Wang	Troy High School	Troy
Lydia Wang	Detroit Country Day	Beverly Hills
Carol Wu	Detroit Country Day	Beverly Hills
Jennie Yang	Troy High School	Troy
Michelle Zhang	Battle Creek Area Math & Science Center	Battle Creek

## STUDENT PARTICIPANTS

Name	School	City
Raehanna Ahmed	Dearborn Center for Math, Science & Technology	Dearborn Heights
Asylah Alghazali	Dearborn Center for Math, Science & Technology	Dearborn Heights
Margaret Anderson	Grand Rapids Catholic Central	Grand Rapids
Ashi Arora	Novi High School	Novi
Kevin Bi	Okemos High School	Okemos
Christopher Chen	Troy High School	Troy
Patrick Chen	Detroit Country Day	Beverly Hills
Jenny Choi	Okemos High School	Okemos
Nada Dakka	Crestwood High School	Dearborn Heights
McKinzie Ervin	Kalamazoo Area Math & Science Center	Kalamazoo
Peter Farha	Grand Rapids Catholic Central	Grand Rapids
Sara Fayad	Crestwood High School	Dearborn Heights
Edward Fenwick	Kalamazoo Area Math & Science Center	Kalamazoo
Kathryn Hamilton	Grand Rapids Catholic Central	Grand Rapids
Carolyn Hamman	Kalamazoo Area Math & Science Center	Kalamazoo
Isabel Hsu	Crestwood High School	Dearborn Heights
Elizabeth Jakubowski	Grand Rapids Catholic Central	Grand Rapids
Rebecca Karl	Grand Rapids Catholic Central	Grand Rapids
Tariq Mekkaoui	Crestwood High School	Dearborn Heights
Brenda Nguyen	Grand Rapids Catholic Central	Grand Rapids
Jorge Ochoa	Kalamazoo Area Math & Science Center	Kalamazoo
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Jaikishan Prasad	Okemos High School	Okemos
Kiana Sadri	Detroit Country Day	Beverly Hills
Corey Shafer	Grand Rapids Catholic Central	Grand Rapids
Michael Shao	Detroit Country Day	Beverly Hills
Anthony Shinn	Okemos High School	Okemos
Sukhnayak Sohi	International Academy East	Troy
Yi-jiao Song	Okemos High School	Okemos
Julia Trombley	Groves High School	Beverly Hills
Anuush Vejalla	Detroit Country Day	Beverly Hills
Frank Wang	Troy High School	Troy
Lydia Wang	Detroit Country Day	Beverly Hills
Carol Wu	Detroit Country Day	Beverly Hills
Jennie Yang	Troy High School	Troy
Genevieve Yarema	Grosse Pointe South High School	Grosse Pointe Farms
Michelle Zhang	Battle Creek Area Math & Science Center	Battle Creek

## **TEACHER/SUPERVISOR/ADMINISTRATIVE PARTICIPANTS**

<b>Name</b>	<b>School</b>	<b>City</b>
Scott Hanson	Battle Creek Area Math & Science Center	Battle Creek
Rebecca Brewer	Troy High School	Troy
Donald Crockett	Novi High School	Novi
Leigh Eriks	Grand Rapids Catholic Central High School	Grand Rapids
Dr. Marc Fazio	Detroit Country Day	Beverly Hills
Dr. John W. Goudie	Kalamazoo Math/Science Center	Kalamazoo
Dr. Patricia Hanlan	Detroit Country Day	Beverly Hills
Nick Jabe	Troy High School	Troy
Diana Johns	Crestwood High School	Dearborn Heights
Christina Marantette	Groves High School	Beverly Hills
Andrew Moore	Okemos High School	Okemos
Deena Parks	Dearborn Center for Math, Science & Technology	Dearborn Heights



## Judges

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**Dr. Arun Anantharam**  
Biology Department  
Wayne State University

**Dr. Siddesh Aras**  
Molecular Biology  
Wayne State University

**Dr. Anna Boegehold**  
Biology Department  
Wayne State University

**Dr. Christy Chow**  
Chemistry Department  
Wayne State University

**Mr. Greg Chappelle**  
Engineer  
TARDEC

**Dr. David Cinabro**  
Physics Department  
Wayne State University

**Dr. Russell Finley**  
School of Medicine  
Wayne State University

**Dr. Haidong Gu**  
Biology Department  
Wayne State University

**Mr. Carl Holmblad**  
Mechanical Engineer  
TARDEC

**Mr. Steven Horne**  
School of Medicine-Genetics  
Wayne State University

**Dr. Dan Kashian**  
Biology Department  
Wayne State University

**Dr. Corey Krabbenhoft**  
Biology Department  
Wayne State University

**Whitney Lee**  
School of Medicine  
Wayne State University

**Dr. Jyoti Nautiyal,**  
Biology Department,  
Wayne State University

**Dr. Karur Padmanabhan**  
Physics Department  
Wayne State University

**Dr. Roger Pique-Regi**  
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