Sigma Xi Student Research Symposium
Posters
Student Union Conference Room: SU2591
Channing Hinman (Pharmacy), Division Chair

Posters may be put up prior to 9:00am, during lunch (12:00n - 1:30pm), or after 2:15pm. The presenters should be at their poster from 5:00pm - 6:00pm.

Life Sciences and Pharmacy
PR-01 Yuqing Jing, Fluororous Thiols in Oligosacchride Synthesis

PR-02 Jordan Rofkar and Kris Barnswell, Phytoremediation at King Road Landfill – Progress and Future Work, Earth, Ecological, and Environmental Sciences, UT (Daryl F. Dwyer)

PR-03 Toni Aloia, Zebrafish embryos as a model to study developmental toxicity related to thimerosal exposure Department of Pharmacology, UT (Frederick E. Williams)

PR-04 Sean Renock, Development of a transgenic fish line for the study of the muscarinic acetylcholine receptor hM1 in the development of Danio rerio, Department of Pharmacology, UT (Frederick E. Williams)

PR-05 Amrita Prasad, UT Pharmacy Students’ Consumption and Perception of Alcohol Use, Dept. of Pharmacy Practice, UT (Walter Siganga)

PR-06 Manli Yang, The Lethal Leaf-Spot 1 (LLS1) Protein Catalyzes Chlorophyll Degradation and is Localized to the Inner Chloroplast Membrane, Dept. of Biological Sciences, UT (John Gray)

Moved from Oral-Life Sciences and Pharmacy to Poster-Life Sciences and Pharmacy
PR-07 open

PR-08 Rob Hobson, Serotonin modulates key processes in nematodes, Dept. of Biological Sciences, UT (Richard Komuniecki)

Physical Sciences and Engineering
PR-09 Noel Richardson, H alpha Periodicities in the Spectrum of Alpha Cygni, Department of Physics and Astronomy, UT (Nancy Morrison)

PR-10 Sarah Fezzey, Characterization of Black Deposit Associated with Rock Paintings in Little Lost River Cave, Idaho using Pyrolysis GC/MS, Department of Chemistry, EMU (Ruth Ann Armitage)

PR-11 Joshua Thomas, Performance Enhancement Study of an Ion Detector in Atomic Collisions, Department of Physics and Astronomy, UT (Thomas Kvale)
Sigma Xi Student Research Symposium
Schedule of Talks
Life Sciences and Pharmacy -- Research pertaining to living organisms
Student Union Conference Room: SU2582
Daryl Dwyer (EEES), Division Chair

SESSION L1

09:00a - 09:15a LSP01 Rhea Y. Busick, Determinant Identified on the GAD65 Molecule is Involved in the Development of Insulitis in Autoimmune Diabetes, Dept. of Biological Sciences, UT (Anthony Quinn)

09:15a - 09:30a LSP02 Stella Mayo, Vâ8+ T Cells Dominate the MOG35-55 T Cell Response in NOD and NOD Congenic Mice, Dept. of Biological Sciences, UT (Anthony Quinn)

09:30a - 09:45a LSP03 Elizabeth Rex, Characterization of tyramine receptors and novel tyraminergic signaling in Caenorhabditis elegans, Dept. of Biological Sciences, UT (Richard Komuniecki)

09:45a - 10:00a LSP04 Chitra Raghunathan, Functional analysis of Lls1-related genes in Cyanobacteria, Dept of Biological Sciences, UT (John Gray)

SESSION L2

10:00a - 10:15a LSP05 Michael Benedict, Linking Water Quality and Satellite-Derived Land Use Data in the Upper-Auglaize Basin, Ohio: Contrasting Trends from the Early-1970's with the Late-1990's and Testing Management Implications, Dept. of Earth, Ecological & Environmental Sciences, UT (Johan F. Gottgens)

10:15a - 10:30a LSP06 Amanda Arceo, The Impact of a Small Dam on Fish Community Composition and Structure in the Ottawa River, Northwest Ohio, Dept. of Earth Ecological and Environmental Sciences, UT (J. Gottgens)

10:30a - 10:45a LSP07 Kerry McKenna, Impacts of Tropic Structure on a Simulated Carbon Flow in a Food Web in Lake Fryxell, Antarctica, Dept. of Earth, Ecological & Environmental Sciences, UT (Daryl Moorhead)

PLENARY SESSION (SU2582) -- Session Chair: Deborah Neher, President-elect of UT Sigma Xi

11:00a - 12:00n Rattan Lal, Ohio State University, Member of the National Academy of Sciences Director, Carbon Management and Sequestration Center

Professor Rattan Lal received a B.Sc. degree in agriculture from Punjab Agricultural University, Ludhiana, India, in 1963; an M.Sc. degree in soil physics from Indian Agricultural Research Institute, New Delhi, India, in 1965; and a Ph.D. in soil physics from The Ohio State University in 1968. He worked in the Department of Soil Science, University of Sydney, Australia, from 1968-69 and then joined International Institute of Tropical Agriculture, Ibadan, Nigeria, as soil scientist in January 1970. He worked in Africa for
about 18 years and joined The Ohio State University in 1987.

As a faculty member at Ohio State, Professor Lal has conducted research on soil degradation and has demonstrated a strong link between soil degradation and the emissions of radiatively-active or greenhouse gases from soil to the atmosphere. He has collaborated with other scientists in a national, multi-institutional research effort that has quantified the potential of soil carbon sequestration for agricultural soils of USA and the world. The project has led to publication of 12 books that are the source of a major global body of literature on the topic.

Professor Lal has authored/co-authored about 300 refereed journal articles in addition to 500 book chapters, invited keynote papers, and conference/symposia presentations. He has written five books and edited/co-edited 32 books. He serves on the editorial board of about 10 international journals, and is a fellow of several professional societies. He is a member of the Inter-Government Panel on Climate Change (IPCC) and of the U.S. National Committee of Soil Science established by the National Academy of Sciences.

12:15p - 1:30p -- LUNCH --

SESSION L3

1:30p - 1:45p LSP08 Olga Shulga, Application of Gold Nanoparticles in the Development of a Biosensor for Detection of Acetylcholine Esterase Inhibitors Dept. of Chemistry, UT (Jon R. Kirchhoff)

1:45p - 2:00p LSP09 Qinfeng Liu, Purification of Methanol Dehydrogenase for Development of a Methanol Electrochemical Biosensor, Dept. of Chemistry, UT (Jon R. Kirchhoff)

2:00p - 2:15p LSP10 Bin Tang, The effects of the M₁-selective muscarinic agonist CDD-0102 on modifying APP processing and promoting cell survival, Dept. of Medicinal and Biological Chemistry, UT (William S. Messer)

2:15p - 2:30p LSP11 Shuchi Gupta, Stereoselective synthesis of Styryl Lactones as novel anticancer agents, Dept. of Medicinal and Biological Chemistry, UT (Richard Hudson and L.M.V Tillekeratne)

2:30p - 2:45p LSP12 Mamoun Alhamadsheh, Design, synthesis, and biological evaluation of conformationally restrained epothilone analogues, Dept. of Medicinal and Biological Chemistry, UT (Richard A. Hudson and L.M.V. Tillekeratne)

2:45p - 3:00p -- BREAK --
### SESSION L4

3:00p - 3:15p  LSP13  **Amrita Prasad**, *Students’ Selection of Benefits for a Health Care Plan within a Specified Budget*, Dept. of Pharmacy Practice, UT (Walter Siganga)

3:15p - 3:30p  LSP14  **Traci Sickelbaugh**, *Modulation by ellagic acid of DCA-induced developmental defects and oxidative stress in Danio rerio*, Dept. of Pharmacology, UT (Frederick E. Williams)

3:30p - 3:45p  LSP15  **Zaid Batayneh**, *PXR and the regulation of ApoA1 and HDL-cholesterol in rodents*, Dept. of Pharmacology, UT (Kenneth A. Bachmann)

3:45p - 4:00p  LSP16  **Brian Darby**, *Soil Microfauna beneath an Arid Land Biological Crust*, Dept. of Earth, Ecology, and Environmental Sciences, UT (Deborah Neher)

### SESSION L5

4:00p - 4:15p  LSP17  **Shaun Rosebeck**, *The Interferon-inducible Protein ISG12 is Associated with the Mitochondria and Sensitizes HT1080 to Etoposide-induced Apoptosis*, Department of Biological Sciences, UT (Douglas W. Leaman)

4:15p - 4:30p  LSP18  **Ismat Kassem**, *Structural and Functional Assessment of Microbial Communities at King Road Landfill*, Dept. of Earth, Ecological & Environmental Sciences, UT (Daryl Dwyer and William Von Sigler)

4:30p - 4:45p  LSP19  **John Rademacher**, *Forest Structure and Carbon Allocation within and between Two Northern-Mixed Hardwood Edges*, Dept. of Earth, Ecology, and Environmental Sciences, UT (Jiquan Chen)

4:45p - 5:00p  LSP20  **Nancy Vogel**, *The Identification and Characterization of SSAT2 as a Coactivator of p65 Dependent Transcriptional Activation*, Dept. of Biological Sciences, UT (Brian Ashburner)

5:00p - 5:15p  LSP21  **Min Xu**, *Development of Selective Muscarinic Agonists for the Treatment of Schizophrenia and Corresponding High-throughput Functional Assays*, Dept. of Pharmacology, UT (William S. Messer, Jr.)
### Sigma Xi Student Research Symposium
#### Schedule of Talks

**Physical Sciences and Engineering** -- Research pertaining to inanimate Subjects  
**Student Union Conference Room: SU2584**  
**Al Compaan** (Physics & Astronomy), Division Chair

<table>
<thead>
<tr>
<th>SESSION P1</th>
<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Speaker</th>
<th>Department</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:15a - 09:30a</td>
<td>PSE02</td>
<td>Srikanth Pilla, <em>Modulus prediction of nanotube based composites using probability calculus</em>, Mechanical, Industrial and Manufacturing Engineering Dept., UT (Efstratios Nikolaidis)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>09:30a - 09:45a</td>
<td>PSE03</td>
<td>Marcia Williams, <em>A Study of the Factors Affecting Disintegration of Tablets Using the Thermal Mechanical Analyzer</em>, Industrial Pharmacy Division, UT (Kenneth S. Alexander)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>09:45a - 10:00a</td>
<td>PSE04</td>
<td>Bhaswati DattaChowdhury, <em>Application of theoretical models in the crystallization kinetics of sulfapyridine from the amorphous state</em>, Dept. of Industrial Pharmacy, UT (Kenneth S. Alexander)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION P2</th>
<th>Time</th>
<th>Code</th>
<th>Title</th>
<th>Speaker</th>
<th>Department</th>
<th>Chair</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:00a - 10:15a</td>
<td>PSE05</td>
<td>Lalit M.Oberoi, <em>Solubility enhancement of Ibuprofen using nicotinamide as a hydrotropic agent – Study of interaction by thermal, spectroscopic and microscopic techniques</em>, Dept. of Industrial Pharmacy, UT (Kenneth S. Alexander)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:15a - 10:30a</td>
<td>PSE06</td>
<td>John Wisniewski, <em>Circumstellar Disks in LMC/SMC Clusters: Does Age Matter?,</em> Dept. of Physics &amp; Astronomy, UT (Karen S. Bjorkman)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:30a - 10:45a</td>
<td>PSE07</td>
<td>Uma Vijh, <em>Discovery of Blue Luminescence in the Red Rectangle: Possible Fluorescence by Neutral Polycyclic Hydrocarbon Molecules</em>, Dept. of Physics and Astronomy, UT (Adolf Witt)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLENARY SESSION (SU2582) -- Session Chair: Deborah Neher, President-elect of UT Sigma Xi**

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00a - 12:00n</td>
<td>Rattan Lal, Ohio State University, Member of the National Academy of Sciences Director, Carbon Management and Sequestration Center</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:15p - 1:30p</td>
<td>-- LUNCH --</td>
</tr>
</tbody>
</table>
SESSION P3

1:30p - 1:45p PSE08 Tod Damask, Weakly Bound Three-Atom Systems, Dept. of Physics & Astronomy, UT (Bo Gao)

1:45p - 2:00p PSE09 Viral Y Parikh, Sputtered ZnTe:N / ZnO:Al tunnel junction for cascade solar cells, Dept. of Physics & Astronomy, UT (Alvin D. Compaan)


2:15p - 2:30p PSE11 Aarohi Vijh, Flexible amorphous Si solar cells on plastic substrates, Dept. of Physics & Astronomy, UT (Xunming Deng)

2:30p - 2:45p PSE12 Chandan Das, Amorphous silicon based alpha particle detector, Dept. of Physics & Astronomy, UT (Xunming Deng)

2:45p - 3:00p -- BREAK --

SESSION P4

3:00p - 3:15p PSE13 Xiangxin Liu, A photoluminescence study of Cl and Cu implanted CdTe crystal, Dept. of Physics & Astronomy, UT (Alvin D. Compaan)

3:15p - 3:30p PSE14 Chen Chen, A Technique to Measure and Compensate For Prostate Movement for Patients Receiving Daily IMRT Treatment Using BAT System Compared With EPID, Dept. of Radiation Oncology, MCO (E. Ishmael Parsai and John Feldmeier)

3:30p - 3:45p PSE15 Abhinit Priyadershi, Comparative Analysis in Calibration of Superficial X-Ray Therapy Unit Using Various Ionization Chambers, Dept. of Radiation Oncology, MCO (E. Ishmael Parsai and John Feldmeier)

3:45p - 4:00p PSE16 David Pearson, Ballistic magnetoresistance in lithographically patterned nanocontacts, Dept. of Physics & Astronomy, UT (Ale Lukaszew)

SESSION P5

4:00p - 4:15p PSE17 Paroma Chakravarty, Evaluation of the Crystalline Properties and Dissolution Profiles of Tolbutamide: Effect of Experimental Factors and Solid Dispersions, Dept. of Pharmacy Practice, UT (Kenneth S. Alexander)

4:15p - 4:30p PSE18 open
### Sigma Xi Student Research Symposium
### Schedule of Talks
### Undergraduate Student Research -- Research pertaining to all subjects
### Student Union Conference Room: SU2591
### Andrew Heydinger (Civil Engineering), Division Chair

<table>
<thead>
<tr>
<th>SESSION U1</th>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>09:00a - 09:15a</td>
<td>Mike Ponting</td>
<td><em>The Effects of Ion Beam Irradiation on Commercial Water Treatment Membrane Pore Size Distribution</em></td>
<td>Dept. of Chemical Engineering, UT</td>
<td>Isabel Escobar</td>
</tr>
<tr>
<td></td>
<td>09:15a - 09:30a</td>
<td>Lori Meier</td>
<td><em>Increasing Membrane Fouling Resistance Via in-situ Surface Modifications</em></td>
<td>Chemical Engineering Department</td>
<td>Isabel Escobar</td>
</tr>
<tr>
<td></td>
<td>09:30a - 09:45a</td>
<td>Joel Davidson</td>
<td><em>Testing the interactions between LLS1 and its candidate partner proteins using BacterioMatch® Two-Hybrid System</em></td>
<td>Dept. of Biological Sciences</td>
<td>John Gray</td>
</tr>
<tr>
<td></td>
<td>09:45a - 10:00a</td>
<td>Morgan Sammons</td>
<td><em>DEK-Mediated Modulation of NF-κB Transcriptional Activity</em></td>
<td>Dept. of Biological Sciences</td>
<td>Brian Ashburner</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SESSION U2</th>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10:00a - 10:15a</td>
<td>open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:15a - 10:30a</td>
<td>open</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:30a - 10:45a</td>
<td>Nicholas Sperling</td>
<td><em>Magnetic Nanostructures</em></td>
<td>Dept. of Physics and Astronomy</td>
<td>R. A. Lukaszew</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PLENARY SESSION (SU2582)</th>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11:00a - 12:00n</td>
<td>Rattan Lal</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SESSION U3

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Title</th>
<th>Department</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30p - 1:45p</td>
<td>Jackie Must</td>
<td><em>Dust in Galaxies</em></td>
<td>Dept. of Physics and Astronomy</td>
<td>A. N. Witt</td>
</tr>
<tr>
<td>1:45p - 2:00p</td>
<td>Joshua Thomas</td>
<td><em>Gravitational Microlensing of Stars with Circumstellar Envelopes</em></td>
<td>Dept. of Physics and Astronomy</td>
<td>Jon Bjorkman</td>
</tr>
</tbody>
</table>