

# **SCHEDULE OF EVENTS**

100th Annual Meeting

Friday, April 10, 2015

and

Saturday, April 11, 2015

Cedar Shore Resort and Bridges Conference Center

Oacoma, SD

Hosted by

Executive Committee of the South Dakota Academy of Science

Program Printed By

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## South Dakota Academy of Science

## 2015 Annual Meeting

**http://www.sdstate.edu/sdas**

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| Publicity | James Sorenson, MMC, Biology, 605-668-1581, jsorenson@mtmc.edu |
| Publicity | Robert Tatina, DWU biology (retired)269-426-3744, rotatina@dwu.edu |
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| Member-at-Large2012-2015 | Mark Gabel, BHSU biology (retired)605-642-6251, Mark.Gabel@bhsu.edu |
| Member-at-Large2012-2015 | Paula Mazzer. DWU, Chemistry.605-995-2899, pamazzer@dwu.edu  |
| Member-at-Large2012-2015 | Brian Patrick, DWU. Biology605-995-2712, brpatric@dwu.edu |

### Upcoming Meeting Locations

2016 University of Sioux Falls

2017 Dakota Wesleyan University

SCHEDULE OF EVENTS

**Friday, April 10, 2011**

Cedar Shore Resort and Bridges Conference Center

Wheeler/Howe/Glass Rooms

Pre-function Space/ Corridor

Registration 8:00 AM – 5:00 PM Corridor

Executive Committee NOON – 1:30 PM TBA

Physics Symposium I 8:00 AM – 2:40 PM Howe

**Frontier Physics**

Physics Symposium II 2:40 PM—5:50 PM Howe

**Applied Physics**

History of Science Symposium 9:00 AM—5:00 PM Glass

**A Century of South Dakota Scientists and Their Science**

Mixer 5:00 PM—6:00 PM Corridor

Banquet/Awards 6:00 PM – 7:45 PM Wheeler

Plenary Address 8:00 PM Howe/Glass

**“The South Dakota Academy of Science: A Century of Challenges and Triumphs”**

**Michael J. Mullin**

Professor of History

Augustana College

Sioux Falls, SD

SCHEDULE OF EVENTS

**Saturday April 11, 2015**

Cedar Shore Resort and Bridges Conference Center

Wheeler/Howe/Glass/Oacoma Rooms

Pre-function Space/Corridor

Registration 7:00 AM – NOON Corridor

Contributed Papers 8:00 AM – 10:15 AM Howe/Glass/River Run

* Session A. Physics Howe
* Session B. Biology Glass
* Session C. Biology Oacoma

Poster Setup 7:00 AM – 9:30 AM Corridor

Break/Poster Session 10:00 AM – NOON Corridor

**(Authors should be present at their posters for discussion)**

Luncheon/Business Meeting NOON – 2:00 PM Wheeler

Contributed Papers 2:00 PM – 3:15 PM Glass/Howe

* Session D. Biology Howe
* Session E. Biology Glass

----------------------Friday, April 10, 2015-----------------------

Physics Symposium I

**Frontier Physics**

**8:00 AM-2:40 PM** **Howe**

**Section A** **(Opening - 8:00 am to 9:20 am, Chair: Tina Keller)**

**8:00 - 8:20** **Opening Symposium for "100 years of Physics in South Dakota: the**

**current legacy” Overview of the SD Physics for 100 years - Joel Rauber**

**8:20 - 8:40 SURF status - Jaret Heise**

**8:40- 9:00 NSF PIRE Consortium (CUBED) – Dongming Mei**

**9:00 - 9:20 Measured muon-induced fast neutrons - Chao Zhang**

***9:20- 9:50 Coffee Break***

**Section B (Astroparticle Physics - 9:50 - 11:40, Chair: Kara Keeter)**

**9:50 - 10:10 LUX/LZ - Kareem Kazkaz**

**10:10 - 10:30 SuperCDMS - Joel Sander**

**10:30 - 10:50 Darkside - Drew Alton**

**10:50- 11:00 LUX at SDSMT - Doug Tiedt (C)**

**11:00 - 11:10 Energy scale study for xenon detector - Lu Wang (C)**

**11:10 - 11:20 Plasma Effect study for Germanium Detectors - Wenzho Wei (C)**

**11:20 - 11:40 CASPAR - Xinhua Bai**

***11:40 - 12:40 Lunch Break***

**Section C (Neutrino Physics - 12:40 - 2:40, Chair: Joel Rauber)**

**12:40- 1:00 Majorana - Cabot-Ann Christofferson**

**1:00 - 1:20 EXO - Ryan Macllean**

**1:20 - 1:40 LBNE - Barbara Szczerbinska**

**1:40 - 2:00 LBNE at SDSMT - Juergen Reichenbacher**

**2:00 - 2:20 NOvA - Luke Corwin**

**2:20 - 2:40 IceCube - Xinhua Bai**

***2:40 - 3:00: Coffee Break***

Physics Symposium II

**Applied Physics**

**3:00 PM-5:50 PM** **Howe**

**Section A (High-purity materials - 3:00 - 4:10, Chair: Vladimir Sobolev)**

**3:00 - 3:20 PPC with amorphous Ge - Jing Liu**

**3:20 - 3:40 Zone Refining - Gang Yang**

**3:40 - 4:00 Crystal Growth - Guojian Wang**

**4:00- 4:10 Characterization aT USD - Hao Mei (C)**

**Section B: (Condensed matter, Atomic Physics/ nuclear physics, and others - 4:10 -**

**5:50, Chair: Drew Alton)**

**4:10 - 4:30 Condensed matter research at SDSMT - Vladimir Sobolev**

**4:30 - 4:50 Materials Science research development AT South Dakota State University - Yung Huh**

**4:50 - 5:10 Research on Atomic and Molecular Physics at Augie - Eric Wells**

**5:10 - 5:30 Research on Nuclear Physics at Augie - Nathan Grau**

**5:30 - 5:50 Research Experiences for Physics Undergraduates in Novel Magnetic Materials at South Dakota State University - Parashu Ram Kharel**

History of Science Symposium

**A Century of South Dakota Scientists and Their Science**

**9:00 AM -5:00 PM** **Glass**

 **9:00-9:30 A CONCORDANCE OF SCIENCE EDUCATION THEMES IN THE SDAS PROCEEDINGS: The First Hundred Years.** **Cathy Ezrailson.** Education Department, University of South Dakota

**9:30-10:00 From Tabeau to SDOU: A brief history of ornithology in south Dakota with special reference to works published in the *Proceedings of the South Dakota Academy of Science.* David L. Swanson.** Department of Biology, University of South Dakota (15-16)

***10:00-10:30 Coffee Break***

**10:30-11:00 A CENTURY OF ACADEMY OF SCIENCE PUBLICATIONS WITH RELEVANCE TO SOUTH DAKOTA’S WILD FAUNA AND FOSSILS**. **Kenneth Higgins.** South Dakota State University (15-52)

**11:00-11:30 A History of Botanical Exploration in South Dakota**. **Mark Gabel\*1, Grace Kostel1 and David Ode2.** 1Herbarium, Dakota State University; 2South Dakota Game Fish and Parks

**11:30-12:00 Understanding South Dakota Water Resources: A Century of contributions from the academy. N. H. Troelstrup, Jr.\*, K. L. Faltys, L. C. Kuehl, and E. D. Peterson.** Department of Resource Management, South Dakota State University

***12:00-1:30 Lunch Break***

**1:30-2:00 Scientific Contributions of the South Dakota Academy of Science to Agriculture in South Dakota and Beyond: A Brief History.** **Arvid Boe.** Plant Science Department, South Dakota State University (15-86)

**2:00-2:30 South Dakota and Chemistry: A Rich History. Miles Koppang1\* and Matt Miller2.** 1Chemistry Department, University of South Dakota; 2Department of Chemistry, South Dakota State University (15-83)

**2:30-3:00 Historic Contributions of Geology and Hydrology Articles in the Proceedings of the South Dakota Academy of Science**. **Perry Rahn.**  Department of Geology & Geological Engineering, South Dakota School of Mines & Technology (15-87)

**3:00-3:30** ***Coffee Break***

**3:30-4:00 SIGNIFICANT CONTRIBUTIONS TO PALEONTOLOGY IN 100 YEARS OF THE SOUTH DAKOTA ACADEMY OF SCIENCES. Ed Welsh\*1 and Sally Y. Shelton2.** 1Badlands National Park; 2South Dakota School of Mines and Technology (15-86)

**4:00-4:30 ONE HUNDRED YEARS OF VALUABLE SCIENTIFIC RECORDS: WHAT CRICIALLY IMPORTANT INFORMATION CAN WE “EXTRACT” FROM OUR PROCEEDINGS THAT INFORMS OUR COLLECTIVE FUTURE IN SOUTH DAKOTA AND THE WORLD. Nels Granholm.** South Dakota State University (15-84)

**4:30-5:00 A BRief History of the South Dakota Academy of Science, 1915-2014. Robert Tatina.** Dakota Wesleyan University (15-85)

----------------------**Saturday, April 11, 2015**-----------------------

CONTRIBUTED PAPERS

**Session A. Physics/Chemistry—Moderator: Andrew Detwiler**

**8:00-10:30**  **Howe**

**8:00-8:15 Investigating the Use of Copper photoredox Catalysts in an Enantioselective Reaction.** **Sarah A. Souder\*UG and Katrina H. Jensen.** Chemistry Department, Black Hills State University (15-37) JUDGE

**8:15-8:30 Electrochemical Study of Hybrid Silicon-Polyaniline Nanostructures for Lithium ion Battery anode Application**. **Michael McGraw\*UG, Praveen Kolla, and Alevtina Smirnova.** Department of Chemistry and Applied Biological Sciences, South Dakota School of Mines and Technology (15-25) JUDGE

**8:30-8:45 Synthesis and Characterization of Ti2MnAl: A Potential Spin Gapless Semiconductor. Simeon Gilbert\*UG, Ryan FuglsbyUG, Yung Huh and Parashu Kharel.** Department of Physics, South Dakota State University (15-47) JUDGE

**8:45-9:00 Motivation and Development of the MPC-EX Detector at RHIC-PHENIX.** **Michael LeVan\*UG and Nathan Grau.** Physics Department, Augustana College (15-36) JUDGE

**9:00-9:15** **Microstructure and Physical Properties of THE Al2O3-40wt.%TiO2 Ceramic Coating**. **Ke Yang\*1,2 and Yefeng Bao1.**  1College of Mechanical and Electrical Engineering, Hohai University; 2Department of Physics, South Dakota State University (15-21)

**9:15-9:30 THE LANGUAGE OF MODELS IN HYDROLOGY: A PARTICULIAR CASE FOR SOUTH DAKOTA**. **B. A. Shmagin.** Department of Agricultural and Biosystems Engineering, South Dakota State University (15-26)

**9:30-9:45 FERMI’S QUESTION**. **Perry H. Rahn\*1 and Thomas V. Durkin2.** 1Department of Geology & Geological Engineering, 2NASA Space Grant Consortium, South Dakota School of Mines & Technology (15-04)

**9:45-10:00 CLOUD SEEDING AS A WATER MANAGEMENT TOOL IN WESTERN SOUTH DAKOTA. Andrew Detwiler.** Atmospheric and Environmental Sciences Program, South Dakota School of Mines and Technology (15-20)

**10:00-10:15**  **BIOELECTROCHEMICAL/MEMBRANE TECHNOLOGIES FOR ENABLING ENERGY-EFFICIENT WASTEWATER REUSE IN POWER PLANTS. Namita Shrestha\*, Venkataramana Gadhamshetty and Gina ElmoreUG.** Department of Civil and Environmental Engineering, South Dakota School of Mines and Technology (15-75)

**10:15-10:30 Hydrology and Pressure Buildup in Core Holes on the 4850-ft Level at SURF. Larry D. Stetler.** Department of Geology & Geological Engineering, South Dakota School of Mines and Technology (15-92)

CONTRIBUTED PAPERS

**Session B. Biology—Moderator: Jack Butler**

8**:00-10:15**  **Glass**

**8:00-8:15 Enhanced proteasome function mediates the protection of PDE5 inhibition against myocardial ischemia-reperfusion injury. Erin J. M. Terpstra\*, Chengjun Hu, and Xuejun Wang.** Basic Biomedical Sciences Division, Sanford School of Medicine, University of South Dakota (15-65)

**8:15-8:30 Cloning, expression and purification of a hypothetical protein SAV1226 as a potential drug target for Methicillin/Vancomycin-*Staphylococcus aureus* Infections**. **Nichole Louise Haag, Kimberly Kay VelkUG, Kelly ShillingUG, Tyler McCuneUG, and Chun Wu\*.** Division of Natural Sciences, Mount Marty College (15-01)

**8:30-8:45 Forest Structure, Logging, and Introduced Plants in the Black Hills National Forest. Jack Butler\* and Stefanie Wacker.** Forest & Grassland Research Laboratory, Rocky Mountain Research Station, US Forest Service (15-61)

**8:45-9:00 TEMPERATURE, CLIPPING, AND DROUGHT EFFECTS ON BELOWGROUND BUD OUTGROWTH OF INVASIVE *BROMUS INERMIS* AND NATIVE *PASCOPYRUM SMITHII****.* **Jacqueline P. Ott\*1,2 Jack L. Butler2, Yuping Rong3, and Lan Xu1.**  1Department of Natural Resource Management, South Dakota State University; 2Forest and Grassland Research Laboratory, Rocky Mountain Research Station, U.S. Forest Service; 3Department of Grassland Science, Animal Science & Technology College, China Agricultural University (15-17)

**9:00-9:15 Reasons Anglers Did Not Respond to an Internet Survey and Evaluation of Data Quality**. **Larry M. Gigliotti\*1 and Kjetil R. Henderson2.** 1U.S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, 2United States Fish and Wildlife Service, Carterville Fish and Wildlife Conservation Office (15-05)

**9:15-9:30 ANGLER SATISFACTION IN SOUTH DAKOTA. Kjetil Henderson1 and Larry Gigliotti\*2.** 1U.S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, 2United States Fish and Wildlife Service, Carterville Fish and Wildlife Conservation Office (15-06)

**9:30-9:45 Toxicity of Ammonia to Rio Grande Silvery Minnow under Various Exposure Regimes.** **Kevin H. Buhl.** USGS Columbia Environmental Research Center, Yankton Field Research Station (15-42)

**9:45-10:00 On-site Toxicological Assessments of Point Source Discharges to the Rio Grande, NM, on the Silvery Minnow**. **Kevin H. Buhl.** USGS Columbia Environmental Research Center, Yankton Field Research Station (15-43)

**10:00-10:15 RE-ESTABLISHMENT OF FINESCALE DACE (*Phoxinus neogaeus*) IN MUD LAKE, LAWRENCE COUNTY, SOUTH DAKOTA. Jane Amiotte1, Greg Simpson1,\* and Michael E. Barnes2.** 1South Dakota Department of Game, Fish and Parks; 2McNenny State Fish Hatchery, South Dakota Department of Game, Fish and Parks (15-88)

CONTRIBUTED PAPERS

**Session C. Biology—Moderator: Paul Johnson**

**8:00-10:15** **Oacoma**

**8:00-8:15 Daily activity pattern and circadian rhythm in a Nicrophorine burying beetle (*Nicrophorus marginatus*). Leah M. Hiller\*UG, April E. ParsonsUG, Carrie L. Hall, and Daniel R. Howard.**  Biology Department, Augustana College (15-62) JUDGE

**8:15-8:30 CHARACTERIZATION OF *dIAPORTHE* SPECIES INFECTING SOYBEANS (*GLYCINE MAX* l.) IN SOUTH DAKOTA. Ahmed Gebreil\*, Ana Micijevic, Alec WeberUG, Luke HyronimusUG, and Febina Mathew.** Department of Plant Sciences, South Dakota State University (15-07)

**8:30-8:45 Elateroid Beetles of The Bahamas: Present and Future Diversity. Paul J. Johnson.** Insect Biodiversity Lab, Department of Plant Sciences, South Dakota State University (15-57)

**8:45-9:00** **First Report of Seed Predators of Platte Milk-vetch (*Astragalus plattensis* Nutt. Ex T. & G.). Arvid Boe\* and Paul J. Johnson.** Plant Science Department, South Dakota State University (15-81)

**9:00-9:15 Below ground bud bank of *Bromus inermis* in response to mowing frequency over two growing seasons. Denise Olson\*1UG, Lan Xu1, Arvid Boe2, and Nels H. Troelstrup, Jr.1** Department of Natural Resource Management, 2Plant Science Department, South Dakota State University (15-74) JUDGE

**9:15-9:30**  **Differential response of Teosinte and Flint, Sweet, and Dent Corn Varieties Weed Competition**. **S. A. Hansen\*, S. A. Clay, D. P. Horvath, and S. Flint-Garcia.** Plant Science Department, South Dakota State University (15-27) JUDGE

**9:30-9:45 PRAIRIE OR WOODLAND? RECONSTRUCTING PAST PLANT COMMUNITIES AT GOOD EARTH STATE PARK VIA SOIL CORE AND TREE CORE ANALYSIS. Mason D. VanEssen\*1UG, Craig N. Spencer1, and W. Carter Johnson2.** 1Biology Department, Augustana College, 2Department of Natural Resource Management, South Dakota State University (15-38) JUDGE

**9:45-10:00 A longitudinal study of teaching methodology and content learning in introductory biology: Does method matter? Megan A. Bezdicek, Daniel R. Howard, and Carrie L. Hall\*.**  Biology Department, Augustana College (15-64) JUDGE

**10:00-10:15 One or Two *Stenodiplosis* (Diptera: Cecidomyiidae) on *Alopecurus arundinaceus* and *Bromus inermis* in Eastern South Dakota? Juan Manuel Perilla López\*, Paul J. Johnson, and Arvid Boe.** Insect Biodiversity Lab., Department of Plant Science, South Dakota State University (15-73) JUDGE

POSTER SESSION

**10:15-12:00** **Corridor**

**NOTEWORTHY HEALED FRACTURES IN SOME AMERICAN ARTIODACTYLA**. **Eric Deeble1, Barbara Smith Grandstaff1, and David C. Parris\*2.** 1School of Veterinary Medicine, University of Pennsylvania, Philadelphia; 2Bureau of Natural History, New Jersey State Museum (15-02)

**ECOLOGICAL MODEL FOR CLASSIFICATION AND MONITORING GREEN ASH- chokecherry - western snowberry ECOLOGICAL TYPE IN THE NORTHERN GREAT PLAINS. D.W. Uresk\*, K.E. Severson, and J. Javersak.** USDA-Forest Service (15-10)

**DETECTING AND QUANTIFYING SOYBEAN STEM CANKER PATHOGENS (*DIAPORTHE* SP.) IN SOIL AND PLANT SAMPLES USING REAL-TIME PCR**. **Brian Kontz\*, Sajag Adhikari, Pamela Bartlett, Thomas Chase, Senthil Subramanian, and Febina Mathew.** Department of Plant Science, South Dakota State University (10-11)

**EVALUATING CATTLE INTROGRESSION IN BISON ON THE PINE RIDGE RESERVATION. Tada R. Vargas\*1UG, A. Higa1, and Forrest Cain2.** 1Oglala Lakota College; 2Black Hills State University (15-41) JUDGE

**IDENTIFICATION OF DISEASE RESISTANCE GENES IN *AEGILOPS TAUSCHII* COSS. (POACEAE). Samantha R. Shaw\*UG, Ethan J. Andersen\* and Madhav P. Nepal.** Biostress Lab, South Dakota State University (15-54) JUDGE

**Phylogeny of Armadillos**. **Anadia Rockey\*UG and Shae McClanahanUG.** Biology Department, Northern State University (15-39) JUDGE

**Influence of Pactola Reservoir on the Aquatic Insect Assemblage of Rapid Creek**. **Sam Cooper\* UG and Nels H. Troelstrup Jr.** Department of Natural Resource Management, South Dakota State University (15-29) JUDGE

**Potential Use Of Lectins To Identify Intact And Ruptured Trichostrongyle Nematode Eggs In Sheep Fecal Samples**. **Y. M. Al-Kappany\*1, A. Sarah2, and M .B. Hildreth2,3.**  1Department of Parasitology, Mansoura University;2Department of Veterinary & Biomedical Sciences, 3Department of Biology & Microbiology, South Dakota State University (15-48)

**Attempt to Eliminate an Anthelmintic-Resistant Strain of *Haemonchus contortus* from a South Dakota Sheep Herd using a Combination Treatment Involving Three Anthelmintic Drug Classes.**  **A. Sarah\*, L. D. Holler, S. Holler, and M. B. Hildreth.**  Department of Biology & Microbiology, South Dakota State University (15-49)

**A Historical Perspective of Mosquito Surveillance in South Dakota. G. P. Vincent\*1, C. D. Carlson2, L. Kightlinger3, M. C. Wimberly4, and M. B. Hildreth1.** **1**Department of Biology and Microbiology, South Dakota State University, Brookings, SD 57007; **2**South Dakota Public Health Laboratory, **2**South Dakota Department of Health Pierre, SD 57501; **4**Geographic Information Science Center of Excellence (GIScCE), South Dakota State University, Brookings, SD 57007

 (15-50)

**First Report of Anthelmintic Resistant Trichostrongyle Nematodes in a Goat Herd from East-central South Dakota.** **K. Gustafson\*1UG, Y. M. Al-Kappany2, A. Sarah3, and M. B. Hildreth1,3. 1**Department of Biology and Microbiology, South Dakota State University, **2**South Dakota Public Health Laboratory, **2**South Dakota Department of Health; **4**Geographic Information Science Center of Excellence, South Dakota State University (15-51) JUDGE

**A miniscule new spider species in the genus *Mermessus* O. Pickard-Cambridge (Araneae, Linyphiidae). L. Brian Patrick.** Department of Biological Sciences, Dakota Wesleyan University (15-58)

**Expression of ADH gene in populations with a high frequency of alcohol dependency**. **Alex Traufler\*UG.** Biology Department, Northern State University (15-31)

**Testing the Feasibility of Inexpensive, Real Time Carbon Dioxide Measurements Using Combustion Sources**. **Thomas King\* and Andrew Detwiler.** Atmospheric and Environmental Sciences Program, South Dakota School of Mines and Technology (15-22)

**LIQUID AND SOLID RESIDUE CHARACTERIZATION OF LIGNIN AFTER THERMAL TREATMENT AT SUB- AND SUPER-CRITICAL ENVIRONMENT. Abu Md Numan-Al-Mobin\* and Alevtina Smirnova**. Department of Chemistry and Applied Biological Sciences, South Dakota School of Mines and Technology (15-32) JUDGE

**Production of High-value Organic Products by Lignin Laccase-mediator System**. **Bin Yao, Praveen Kolla, and Alevtina Smirnova\*.** Department of Chemistry and Applied Biological Sciences, South Dakota School of Mines and Technology (15-33) JUDGE

**The Preparation of OxyGen Permeable Siloxane Membranes Containing Perfluoroalkylsulfones**. **M. Hockert\*UG, T. Moodie\*UG, A. Schwader\*UG, and G. A. Hartgraves.** Dakota Wesleyan University (15-34) JUDGE

**The effects of airborne particulate matter on rat neuronal cells. Megan E. Johnson\*UG and Paula A. Mazzer.** Department of Chemistry and Physical Sciences, Dakota Wesleyan University (15-60) JUDGE

**Above-ground pitfall trap efficacy in field surveys for the endangered American burying beetle (*Nicrophorus americanus*). Rachel E. Jorde, Elisabeth K. Jorde, Carrie L. Hall\*, and Daniel R. Howard.** Biology Department, Augustana College (15-63)

**HOW WELL DOES THE USDA’S CROPLAND DATA LAYER CAPTURE UNDISTURBED LANDS? M. A. Bouchard and C. A. Johnston\*.** Department of Natural Resource Management, South Dakota State University (15-66)

**Transforming Undergraduate Biology Education at Augustana College. Steven L. Matzner\*, Jennifer Gubbels, and Carrie Hall.** Biology Department, Augustana College (15-68)

**Characterization of three N2-fixing Cyanobacterial members of Chroococcales isolated from Bay of Bengal. Paramageetham Chinthala\*, Liping Gu, and Ruanbou Zhou.** Department of Biology and Microbiology, South Dakota State University (15-75)

**Isolation, Identification and Characterization of Bacterial Micro-Flora Exhibiting Insecticidal Activity. L. A. Kempf\*UG, S. J. BahrUG, S. A. SorensonUG, and J. C. Mitchell.** Biology Department, Northern State University (15-76) JUDGE

**A Survey of Mosquito Populations in Brown County, SD Implications for West Nile Virus. S. J. Bahr\*UG, K. K. CrossUG, B. M. CrosswaitUG, M. D. HenschelUG, A. A. IversonUG, M. J. MustonUG, S. A. SorensonUG, K. M. RundquistUG, M. L. WardUG, B. L. RoseUG, A. M. Anderson, and J. C. Mitchell.**  Biology Department, Northern State University (15-77) JUDGE

**INDENTIFYING PROMISING NEW FALCATA ALFLAFA POPULATIONS FOR USE IN SEMIARID RANGELANDS. Derek Kannenberg1UG, Lan Xu\*1, Arvid Boe2, Roger N. Gates1, and Patricia S. Johnson1.** Department of Natural Resource Management, 2Department of Plant Science, South Dakota State University (17-79)

**Engineering N2-fixing cyanobacteria to produce ethanol fuel from CO2 and H2O**. **Nate Braselton\* and Ruanbao Zhou.** Department of Biology and Microbiology, South Dakota State University (15-80)

**FORENSIC SCREENING OF HAZARDOUS CHEMICALS PRESENT IN THERMAL CASH REGISTER RECEIPTS COLLECTED FROM BUSINESSES IN THE VICINITY OF DAKOTA STATE UNIVERSITY. Michele Rogers\*UG and Michael Gaylor.** College of Arts and Sciences, Dakota State University (15-89) JUDGE

**VERIFICATION OF DIRECT INGESTION OF FLAME RETARDANT-TREATED CONSUMER POLYURETHANE FOAM BY HOUSE CRICKETS (*Acheta domestica*) USING LIGHT MICROSCOPY. Grace Estridge\*UG and Michael Gaylor.** College of Arts and Sciences, Dakota State University (15-90) JUDGE

**Examination of antibiotic resistance in *E. coli* from Lake Herman, Lake County, SD and lab strain B. Sherif El Gayar\*UG and D. Hazelwood.** College of Arts and Sciences, Dakota State University (15-91)

**Nitrogen Fixing Endophytes of a Non-nodule Forming Legume. Tyrel Deutscher\*1, Volker Brözel1, Leslie Henry2, and R. Neil Reese1.** 1Department of Biology and Microbiology, South Dakota State University; 2Agriculture Extension, Oglala Lakota College (15-93)

**A Novel Design for a High-Efficiency Phased Array Feed Digital Down-Link.  Luke Hawkins\*UG.  N**ational Radio Astronomy Observatory, Green Bank Site, Green Bank, WV 24944 (15-94) JUDGE​

**LUNCH & BUSINESS MEETING**

**NOON-2:00 PM** **WHEELER**

CONTRIBUTED PAPERS

**Session D. Biology—Moderator: Nels Troelstrup, Jr.**

**2:00 PM -3:15** PM **Howe**

**2:00-2:15 A HISTORCIAL COMPARISON OF NATIVE UNIONDAE MUSSEL DECLINE IN EASTERN SOUTH DAKOTA**. **Kaylee Faltys\* and Nels H. Troelstrup Jr., Chelsey Pasbrig, and Mike Smith.** Department of Natural Resource Management, South Dakota State University (15-44) JUDGE

**2:15-2:30 PHYSICAL HABITAT CHARACTERIZATION OF PERENNIAL WADEABLE STREAMS IN THE NORTHWESTERN GREAT PLAINS OF SOUTH DAKOTA.** **Lyntausha C. Kuehl\*, Chad Kaiser, Katie N. Bertrand, and Nels H. Troelstrup, Jr.** Department of Natural Resource Management, South Dakota State University (15-40) JUDGE

**2:30-2:45 Weather and Temporal Effects on Urban Common Nighthawk (*Chordeiles minor*) Activity during the Breeding Season.**  **G. N. Newberry\* and D. L. Swanson.** Department of Biology, University of South Dakota (15-12) JUDGE

**2:45-3:00** **Identification and characterization of drought-tolerant alfalfa (*Medicago sativa* subsp. *falcata*) germplasm**. **Austin Hanson\*1UG, Lan Xu1, Arvid Boe2, Patricia S. Johnson2, Roger N. Gates2, and Yajun Wu3.** Department of Natural Resource Management, South Dakota State University (15-28) JUDGE

**3:00-3:15** **Bioelectrochemical/membrane technologies for enabling energy-efficient wastewater reuse in power plants. Namita Shrestha*\**, Venkataramana Gadhamshetty, and Gina Elmore\*UG.** Department of Civil and Environmental Engineering, South Dakota School of Mines and Technology (15-78) JUDGE

CONTRIBUTED PAPERS

**Session E. Biology—Moderator: Dale Droge**

**2:00 PM-3:15 PM** **Glass**

**2:00-2:15 STRATIGRAPHIC AND TAXONOMIC REVISION OF A NORTH AMERICAN FALSE SABER-TOOTHED CAT CUB. E. Welsh\*1, C. A. Boyd2, and K. Spearing3.** 1Badlands National Park, 2North Dakota Geological Survey, 3Morningside College (15-72)

**2:15-2:30 Prey availability and diet composition of woodland migrants at natural riparian woodlands and anthropogenic woodlots of the Northern Prairie region. Ming Liu\* and David L. Swanson.** Department of Biology, University of South Dakota (15-30)

**2:30-2:45 Radio-telemetry measurements of stopover behavior of fall migrant Yellow-rumped Warblers (*Setophaga coronata*) in Missouri River riparian forests and anthropogenic woodlots**. **Ming Liu and David L. Swanson\*.** Department of Biology, University of South Dakota (15-14)

**2:45-3:00**  **pHOSPHORUS CONCENTRATIONS IN tRIBUTARIES AND lAKES OF THE lAKE hERMAN AND lAKE mADISON wATERSHED. Dale L. Droge\* and Courtney H. HamblinUG.** College of Arts and Sciences, Dakota State University (15-59)