

# **SCHEDULE OF EVENTS**

**103rd Annual Meeting**

Thursday, April 12, 2018

Friday, April 13, 2018

Saturday, April 14, 2018

University Student Union

South Dakota State University

Brookings, SD

**Local Arrangements Committee**

Paul J. Johnson

Arvid Boe

Nels Troelstrup, Jr.

Parashu Kharel

Abigail P. Martens

Missy Vande Kieft

**Sponsors**

Oak Lake Field Station (South Dakota State University)

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South Dakota State University Seed Testing Laboratory

Department of Agronomy, Horticulture, and Plant Science (SDSU)

Brookings Convention & Visitors Bureau

SDSU Bookstore

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**Directions to access to the SDSU Student Union (USU, ARROW).**Assuming arrival from Hwy 14 (6th Street) at I-29. Drive west on 6th Street (Hwy 14) to 22nd Avenue (3rd stoplight west of I-29) and turn north (right). Drive to University Blvd (11th Avenue) and turn left toward campus.  At 3-way intersection with Frost Arena ahead, turn left onto Jackrabbit Avenue then take next right onto Student Union Lane. Park in lot 150 [see map] at end of lane on right in front of Student Union.

**Parking around the Student Union.** On Thursday (April 12) after 3:30 pm—no problem. On Friday (April 14) use code 7674# to enter parking lot. On Saturday (April 15)—no problem.

**SCHEDULE OF EVENTS**

**Thursday, April 12, 2018**

Executive Council Dinner/Meeting 5:00-7:00 PM State Room (USU 260)

Student Union

Informal Gathering 7:30-??? Wooden Legs Brew Pub

**SCHEDULE OF EVENTS**

**Friday, April 13, 2018**

**All activities take place in the University Student Union (USU)**

Registration 8:00 am – 5:00 pm  Gallery Lounge (USU 251)

Symposium I 8:00 am – 11:30 am Walder Room (USU 269)

Physics & Engineering

Symposium II 9:00 am – 11:00 pm Dakota Room (USU 250)

Fellows of the South Dakota Academy of Science

Lunch (on your own) 11:30 am -- 1:00 pm

Symposium III 1:00 pm – 4:00 pm Walder Room (USU 269)

Threats to Aquatic Biodiversity in South Dakota

Mixer 4:30 pm – 6:00 pm Campanile & Hobo Rooms

(USU 169 A & B)

Banquet 6:00 pm – 7:15 pm Jack’s Place (USU 050)

Welcome from SDSU President Dr. Barry Dunn

Keynote Address 7:30 pm – 8:30 pm Jack’s Place (USU 050)

**Keynote Address**

**Sustainability in South Dakota:  The Roles of Prairie and Values in Creating Multifunctional Landscapes**

**Dr. Meghann Jarchow**

Chair & Assistant Professor

Department of Sustainability & Environment

University of South Dakota

----------------------**Friday Morning, April 13, 2018**-----------------------

**SYMPOSIUM I. PHYSICS AND ENGINEERING**

**Moderators: Parashu Kharel and Robert McTaggart**

**8:00 am – 11:30 am** **Walder Room (USU 269)**

**Name of presenter is underlined**

**8:00-8:30** Preparation, characterization and magnetocaloric effect of La1-xSrxMnO3 nanoparticles. **Bishnu Dahal, Megan M. Allyn, Ronald J. Tackett, Yung Huh, and Parashu Kharel**. (Invited Paper) Physics Department, South Dakota State University, Brookings, SD. (18-11)

**8:40-8:50** Simulation of Neutrino Detection and Background Rejection for a Heavy Liquid Scintillator in a Space Environment. **R. McTaggart.** Department of Physics, South Dakota State University, Brookings, SD. (18-28)

**8:55-9:25** NEUTRINOS – WHAT THEY ARE, WHY THEY MATTER, AND HOW WE STUDY THEM. AN OVERVIEW OF NEUTRINO PHYSICS AND THE DEEP UNDERGROUND NEUTRINO EXPERIMENT. **J. A. Maloney**. (Invited Paper) Dakota State University, Madison, SD. (18-09)

**9:35-10:00** COFFEE BREAK Gallery Lounge (USU 251)

**10:00-10:10** Experimental investigation of a prospective magnetocaloric material Ni2MnIn. **Carter HuberUG, Kyle SchroederUG, Bishnu Dahal, Yung Huh, and Parashu Kharel**. Physics Department, South Dakota State University, Brookings, SD. (18-17) JUDGE

**10:15-10:25** Magnetic Anisotropy of NiCo2O4 Studied Using the Magneto-Optical Kerr Effect. **Jace WaybrightUG, Parashu Kharel, Corbyn Mellinger, Xiaozhe Zhang, and Xiaoshan Xu**. Physics Department, South Dakota State University, Brookings, SD. (18-14) JUDGE

**10:30-10:40** A PHENOMENOLOGICAL MODEL FOR FERROELECTRIC NUCLEATION IN BaTiO3. **T. A. Liebsch**. Physics Department, South Dakota School of Mines & Technology, Rapid City, SD. (18-16) JUDGE

**10:45-10:55** Investigation of magnetic and magnetocaloric properties in Co2VGa-based Heusler compounds. **Kyle SchroederUG, Carter HuberUG, Hanyang Qian, Yung Huh, and Parashu Kharel**. Physics Department, South Dakota State University, Brookings, SD. (18-13) JUDGE

**11:00-11:10** “Magnetic Linear Dichroism” in Angle-resolved photoemission Spectroscopy of (Ga.Mn)As. **Hari Chapagain and Rafal Oszwałdowski.** The Department of Physics, South Dakota School of Mines & Technology, Rapid City, SD (18-71) JUDGE

**11:15-11:25** Low-Dark Matter Search with CDMSlite. **S. Poudel** **for the SuperCDMS Collaboration**, Physics Department, University of South Dakota, Vermillion, SD. (18-80) JUDGE

**11:30-11:40** Projected Sensitivity of the SuperCDMS SNOLAB Experiment**. Thomas Binder and Joel Sander for the SuperCDMS Collaboration**, Physics Department, University of South Dakota, Vermillion, SD. (18-83) JUDGE

**11:45am** LUNCH on your own; in USU or around town

**SYMPOSIUM II. FELLOWS OF THE ACADEMY**

**Moderator: Robert Tatina**

**9:00 am – 11:30 am** **Dakota Room (USU 250)**

**Name of presenter is underlined**

**9:00-9:20** Temporal Impacts of Changing Agricultural Practices and Rural Populations on South Dakota Waterfowl Habitats and Populations. **Kenneth F. Higgins, Lora B. Perkins, and Jessica D. Ulrich-Schad**. Department of Natural Resources Management, South Dakota State University, Brookings, SD. (18-03)

**9:20-9:40** NOTES ON DEVONIAN FOSSILS OF THE BEARTOOTH BUTTE FORMATION, WYOMING. **Barbara S. Grandstaff1, David C. Parris2, and Rodrigo A. Pellegrini1**. 1School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, 2New Jersey State Museum, Trenton, NJ. (18-07)

**9:40-10:00** REFINEMENTS OF THE LATE MIOCENE FORT ROCK FORMATION IN SOUTH-CENTRAL OREGON WITH COMMENTS CONCERNING CORRELATION WITH THE MCKAY FORMATION IN NORTHERN OREGON AND THE TIMING OF THE *PROSOMYS* DATUM. **James E. Martin, Jennifer E. Hargrave and Kristin L. Ball.** Geology Museum, School of Geosciences, University of Louisiana, Lafayette, LA (18-32)

**10:00-10:30** COFFEE BREAK Gallery Lounge

**10:30-11:50** THE CURRENT STATUS OF THE BLACK HILLS STATE UNIVERSITY HERBARIUM. **Grace Kostel, Tara Ramsey, Justin Ramsey and Mark Gabel.** Herbarium, Black Hills State University, Spearfish, SD. (18-31)

**10:50-11:10** SEED SET AND SEED-INSECT INTERACTIONS IN NATURAL AND CULTIVATED POPULATIONS OF PURPLE PRAIRIECLOVER. **Arvid Boe, Paul J. Johnson, and Abigail P. Martens.** Department of Agronomy, Horticulture, and Plant Science, South Dakota State University, Brookings, SD. (18-88)

**11:10-11:30** Optimal Decision-making in Grey Squirrels: A PrLIMINARY ASSESSMENT.  **Robert Tatina.** Dakota Wesleyan University, Mitchell, SD (18-79)

**11:30** **am** LUNCH on your own; in USU or around town.

----------------------**Friday Afternoon, April 13, 2018**-----------------------

**SYMPOSIUM III. THREATS TO AQUATIC BIODIVERSITY IN SOUTH dAKOTA**

**Moderator: Nels Troelstrup, Jr.**

**1:00 pm – 4:45 pm** **Walder Room (USU 269)**

**The South Dakota Academy of Science gratefully acknowledges the sponsorship of this symposium by the East Dakota Water Development District. (Name of presenter is underlined)**

**1:00** Welcome and Introduction. **N. H. Troelstrup, Jr.**

**1:15-1:40** RECOVERYING SOUTH DAKOTA’S THREATENED AND ENDANGERED SPECIES. **C A. Pasbrig and D. O. Lucchesi.** South Dakota Department of Game, Fish and Parks, Pierre, SD. (18-33)

**1:40-2:05** CANARIES IN FRESHWATER: MUSSEL ASSEMBLAGES INDICATE BIODIVERSITY CHANGE IN SOUTH DAKOTA. **Nels H. Troelstrup, Jr.** Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-61)

**2:05-2:30** Threats to aquatic biodiversity on the Missouri River. **David Swanson**. University of South Dakota and the Missouri River Institute, Vermillion, SD. (18-25)

**2:30-2:50** CoFFEE BREAK Gallery Lounge (USU 251)

**2:50-3:15** Water Quality Assessment and Aquatic Biodiversity in South Dakota Freshwater Systems. **Kristopher Dozark**. South Dakota Department of Environment and Natural Resources, Pierre, SD. (18-60)

**3:15-3:40** A habitat condition index for streams in the Northern Glaciated Plains ecoregion of eastern South Dakota. **Jesse Wilkens and Anine Rosse**. South Dakota Department of the Environment and Natural Resources, Pierre, SD. (18-41)

**3:40-4:05** Pollutants in South Dakota tile effluent and potential harm to aquatic biodiversity. **Matthew S. Schwarz**. South Dakota Ecological Field Services Office, U.S. Fish and Wildlife Service, Pierre, SD. (18-34)

**4:05-4:30** Aquatic Invasive Species in South Dakota: Current invaders and potential threats. **B. J. Schall1 and M. J. Greiner2.** 1South Dakota Department of Game, Fish and Parks, Sioux Falls, SD; 2 South Dakota Department of Game, Fish and Parks, Fort Pierre, SD. (18-54)

**4:30** Session Wrap-up and Final Questions. **N. H. Troelstrup, Jr.**

**4:30 pm** MIXER Campanile & Hobo Rooms (USU 169)

**6:00** **pm** BANQUET and Welcome from SDSU President Dr. Barry Dunn--Jack’s Place

**7:30** **pm** KEYNOTE ADDRESS Jack’s Place (USU 050)

SCHEDULE OF EVENTS

**Saturday April 14, 2018**

Registration 8:00 am – 11:30 am Prairie Lounge (USU 263)

Contributed Papers 8:00 am – 11:30 am

* Session A. Biology Walder Room (USU 269)
* Session B. Physical Sciences Dakota Room (USU 250)

Poster Setup 9:00 am - 11:30 am Prairie Lounge ((USU 263)

Luncheon/Business Meeting 11:30 am– 1:30 pm Campanile & Hobo Rooms

(USU 169)

Contributed Papers 1:30 pm - 3:30 pm

* Session C. Biology Walder Room (USU 269)

Poster Judging Session 1:30 pm—3:30 pm Prairie Lounge (USU 263)

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

Closing 3:30 pm– 4:00 pm

------------------------------**Saturday Morning, April 14, 2018**-------------------

CONTRIBUTED PAPERS

**Session A. Biological Science**

**Moderator: Madhav Nepal**

**8:00 am-11:30 am Walder Room (USU 269)**

**Name of presenter is underlined**

**8:00-8:15** Evaluation of Internet Surveys for Conducting Statewide Angler Surveys IN SOUTH DAKOTA. **Kjetil Henderson1 and Larry Gigliotti2**. 1U.S. Fish and Wildlife Service, Carterville Fish and Wildlife Conservation Office, Carterville, IL; 2U. S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, Brookings, SD. (18-05)

**8:15-8:30** EVALUATION OF A SPECIAL DECOY-ONLY PUBLIC GOOSE HUNTING OPPORTUNITY IN CENTRAL south Dakota: THE ROLE OF HARVEST SUCCESS ON HUNTER SATSIFACTION. **Larry Gigliotti.** U. S. Geological Survey, South Dakota Cooperative Fish and Wildlife Research Unit, South Dakota State University, Brookings, SD. (18-06)

**8:30-8:45** BRYOPHAGOUS INSECTS IN THE BLACK HILLS ECOREGION: RECORDS FOR BOREIDAE (MECOPTERA) AND BYRRHIDAE (COLEOPTERA). **Paul J. Johnson**. Insect Biodiversity Lab, South Dakota State University, Brookings, SD. (18-15)

**8:45-9:00** Investigating BACTERIAL COMMUNITIES IN A WARM, ALKALINE POOL IN THE SANFORD UNDERGROUND RESEARCH FACILITY USING CULTURE-BASED AND CULTURE-INDEPENDENT METHODS. **Taylor Liu1, UG and David J. Bergmann2**. 1University of California, Berkeley, CA; 2Black Hills State University, Spearfish, SD. (18-18)

**9:00-9:15** A Report of Two Species of *Bothriochloa* (Poaceae) New to South Dakota. **Jordan Purintun1 and Mark Gabel2.** 1South Dakota Game, Fish and Parks, Pierre, SD. 2Black Hills State University, Spearfish, SD. (18-24)

**9:15-9:30** Aphid-parasitoid (hemiptera & Hymenoptera) trophic interactions in eastern South Dakota**. Abigail P. Martens and Paul J. Johnson.** Insect Biodiversity Lab, South Dakota State University, Brookings, SD. (18-51)

**9:30-10:00** COFFEE BREAK Prairie Lounge (USU 263)

**10:00-10:15** The Changing Status of Winter Passerines in South Dakota: Are Recent Records Associated with Warmer Winters? **David Swanson**. Department of Biology, University of South Dakota, Vermillion, SD. (18-29)

**10:15-10:30** NEW MATERIAL OF *METAMYNODON* (PERISSODACTYLA: AMYNODONTIDAE) FROM BADLANDS NATIONAL PARK AND ITS IMPLICATIONS ON THE WHITNEYAN-ARIKAREEAN TRANSITION**. Ed Welsh1, Darrin Pagnac2, and Clint A. Boyd3.** 1Badlands National Park, Interior, SD; 2South Dakota School of Mines and Technology, Rapid City, SD; 3North Dakota Geological Survey, Bismarck, ND (18-47)

**10:30-10:45** SOCIAL VALUES REGARDING ECOSYSTEM SERVICES AND LAND USE IN THE WESTERN CORN BELT**. M. Carnes and M. Jarchow.** Department of Sustainability and Environment,University of South Dakota, Vermillion, SD. (18-23)

**10:45-11:00** Grassland Bird Use of High and Low Diversity Native Plantings. Jackie K. Krakow1, Kristel K. Bakker1, Kyle Kelsey2, and Kent C. Jensen3. 1College of Arts and Sciences, Dakota State University, Madison, SD; 2United States Fish and Wildlife Service, Madison Wetland Management District, Madison, SD; 3Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-70)

11:00-11:15 Modeling Natural Systems: Logic, Variability & Uncertainty. **Donald Auger, Matthew Biesecker and Boris Shmagin**. South Dakota State University, Brookings, SD. (18-72)

**11:15-11:30** IMPLEMENTATION OF MODIFIED ASTRONOMY LABS AT AUGUSTANA UNIVERSITY**. N. Grau and K. Miller.** Department of Physics and Department of Education,

Augustana University, Sioux Falls, SD. (18-73)

**11:30-1:30 LUNCH /BUSINESS MEETING**

**Campanile and Hobo Rooms—University Student Union Room 169**

CONTRIBUTED PAPERS

**Session B: Physical Sciences**

**Moderator: Parashu Kharel**

**8:00 am-11:30 am** **Dakota Room (USU 250)**

**Name of presenter is underlined**

**8:00-8:15** Quantitative Analysis of Quantum Dots by X-ray Fluorescence. **Hope E. MaundersUG, Alissa J. RuniaUG, Alexander L. TietzUG, and Duane E. Weisshaar.** Department of Chemistry, Augustana University, Sioux Falls, SD. (18-30) JUDGE

**8:15-8:30** Method development for the Determination of the different bromide, bromate and perchlorate ions in ice cores using ion chromatography coupled with mass spectroscopy**. Eman Shams and Jihong Cole-Dai.** Department of Chemistry and Biochemistry, South Dakota State University, Brookings, SD. (18-66) JUDGE

**8:30-8:45** Feasibility Study to evaluate use of thermophilic fermentation, bio-electrochemical and membrane module to reduce energy consumption of municipal wastewater treatment and reuse in power plants. **Bhuvan Vemuri1, Sushma Priyanka Karanam1, Namita Shrestha1, Govinda Chilkoor1, Lichao Xia2, James Kilduff2, Mohit Bibra3, Rajesh K. Sani3, and Venkataramana Gadhamshetty1,4.** 1Civil and Environmental Engineering, South Dakota School of Mines and Technology, Rapid City, SD; 2Department of Civil and Environmental Engineering, Rensselaer Polytechnic Institute, Troy, NY; 3Department of Chemical and Biological Engineering, South Dakota School of Mines and Technology, Rapid City, SD; 4Surface Engineering Research Center, South Dakota School of Mines and Technology, Rapid City, SD. (18-75) JUDGE

**8:45-9:00** Conversion of Phenolic Monomers from the Alkali Lignin using Subcritical water and Catalyst. **Balawanthrao Jadhav, Ranen Roy and Douglas E. Raynie**. Department of Chemistry and Biochemistry, South Dakota State University, Brookings, SD. (18-49) JUDGE

**9:00-9:15** Flipping the classroom and its magical power in the students creativity**. Eman Shams.** Department of Chemistry and Biochemistry. South Dakota State University, Brookings, SD. (18-68) JUDGE

**9:15-9:30** Electrochemical Reduction of Aromatic Nitro Compounds: Strategies for LC-EC Analysis of Sanger Tagged Analytes. **Miththira Balasingam, Paulina Guerrero, Dong Wang, John Becker, Haoran Sun, and Miles Koppang.**Department of Chemistry, University of South Dakota, Vermillion, SD. (18-26) JUDGE

**9:30-10:00** COFFEE BREAK Prairie Lounge (USU 263)

**10:00-10:15** TRITIUM AND CARBON-14 IN THE MADISON LIMESTONE AQUIFER. **Perry H. Rahn**. Department of Geology and Geological Engineering, South Dakota School of Mines and Technology, Rapid City, SD. (18-08)

**10:15-10:30** Summertime Precipitation Enhancement over the United States High Plains. **Andrew Detwiler**. South Dakota School of Mines and Technology, Rapid City, SD. (18-63)

**10:30-10:45** About Scientific Education and the Human Culture**. B. A. Shmagin,** Agricultural and Biosystems Engineering Department, South Dakota State University, Brookings, SD. (18-69)

**10:45-11:00** Rocket Roundup: A How-Guide for Teaching Chemistry and Physics to Middle and High School Students. **Scott McKay, Mahbub Ahmed, Kristopher Beach, Keshav Bedari, Nathan Glaspie, Robert Lashlee III, James Maloney, Jennifer Nash, Mark Geary and Jacob GearyUG**. Dakota State University, Madison, SD. (18-62)

**11:00-11:15** Nickel electrode layered with plasma exfoliated graphene for enhanced performance of microbial fuel cells. **Sambhu Saptoka1, Sushma Priyanka Karanam1, Namita Shrestha1, Zhengrong Gu2, and Venkataramana Gadhamshetty1,3**. 1Civil and Environmental Engineering, South Dakota School of Mines and Technology, Rapid City, SD; 2Agricultural Engineering, South Dakota State University, Brookings, SD; 3Surface Engineering Research Center, South Dakota School of Mines and Technology, Rapid City, SD (18-78)

**11:30-1:30 LUNCH /BUSINESS MEETING**

**Campanile and Hobo Rooms—University Student Union Room 169**

------------------------------**Saturday Afternoon, April 14, 2018**-----------------

CONTRIBUTED PAPERS

**Session C. Biology**

**Moderator: Arvid Boe**

**1:30 pm-3:30 pm**  **Walder Room (USU 269)**

**Name of presenter is underlined**

**1:30-1:45** EVALUATION OF SALT-TOLERANT ALFALFA GERMPLASM. **Katelin E. FrerichsUG, 1, Lan Xu1, and Arvid Boe2.** 1Department of Natural Resource Management; 2Department of Plant Science, South Dakota State University, Brookings, SD. (18-38) JUDGE

**1:45-2:00** Ensemble modeling to predict Virginia’s Warbler (*Oreothlypis virginiae*) breeding distribution at the northeastern periphery of its range**. R. Goljani1, M. D. Dixon1, J. S. Palmer2 and D. L. Swanson1.** 1Department of Biology, University of South Dakota, Vermillion, SD; 2College of Art & Science, Dakota State University, Madison, SD. (18-52) JUDGE

**2:00-2:15** A PCR/SEQUENCING TECHNIQUE TO IDENTIFY SPECIES AND GENOTYPES OF *HAEMONCHUS* FROM MIXED TRICHOSTRONGYLE EGG DNA RECOVERED FROM LIVESTOCK FECAL SAMPLES**. P. Khanal, J.B. McKenzie, P. S. HelisoUG, and M. B. Hildreth.** Department of Biology and Microbiology, South Dakota State University, Brookings, SD. (18-56) JUDGE

**2:15-2:30** *PYGANODON GRANDIS* LONGEVITY ALONG A TROPHIC STATE GRADIENT IN EASTERN SOUTH DAKOTA LAKES. **K. M. Wollman and N. H. Troelstrup, Jr.** Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-59) JUDGE

**2:30-2:45** Grasshoppers of South Dakota: A Species Abundance and Diversity Survey**. Erica Anderson1, Adam Varenhorst1, Philip Rozeboom1, Patrick Wagner2, Amanda Bachmann3 and Billy Fuller1**. 1South Dakota State University, Brookings, SD; 2South Dakota State University, Rapid City, SD; 3South Dakota State University, Pierre, SD. (18-65) JUDGE

**2:45-3:00** Drought and grazing resistance of perennial grasses mediated through belowground bud bank. **Surendra Bam1, Jacqueline P. Ott2, Jack L. Butler2, and Lan Xu1.** 1Department of Natural Resource Management, South Dakota State University, Brookings, SD; 2Forest and Grassland Research Laboratory, US Forest Service, Rocky Mountain Research Station, Rapid City, SD. (18-76) JUDGE

**3:00-3:15** Documenting Rock Bass (*Ambloplites rupestris*) Behavior to Modified Fyke Nets using Video. **Derek HartlUG and Greg Simpson**. South Dakota Game, Fish and Parks, Rapid City, SD. (18-22) JUDGE

**3:15-3:30** INHERITANCE OF SEED COAT COLOR IN RED CLOVER USING HALF-SIB FAMILIES. **Sharon FolkUG and Arvid Boe**. Department of Agronomy, Horticulture, and Plant Science, South Dakota State University, Brookings, SD. (18-87) JUDGE

**POSTER JUDGING SESSION**

**1:30 pm-3:30 pm**  **Prairie Lounge (USU 263)**

**Name of presenter is underlined**.

Structure and magnetism of NiFeMnGaxSn1-x (x = 0, 0.25, 0.5, 0.75, 1) Heusler alloys. **Jace WaybrightUG, Lee HalbritterUG, Hanyang Qian, Bishnu Dahal, Pavel Lukashev, Yung Huh, and Parashu Kharel**. Physics Department, South Dakota State University, Brookings, SD. (18-10) JUDGE

Synthesis and characterization of Mn2-xSn0.5Ga0.5 (x = 0, 0.3, 0.5, 0.8) alloys. **Hanyang Qian,Kyle SchroederUG, Yung Huh, and Parashu Kharel**. Physics Department, South Dakota State University, Brookings, SD. (18-12) JUDGE

EVOLUTIONARY CONSERVATION OF DISEASE RESISTANCE COMPONENTS ACROSS MULTIPLE GRASS SPECIES. **Ethan J. Andersen and Madhav P. Nepal.** Department of Biology and Microbiology, South Dakota State University, Brookings, SD. (18-19) JUDGE

Evolution of MAP Kinase Gene Families in Sunflower. **Sarah Schweitzer1, Alyssa Vachino1, Surendra Neupane1, Ruanbao Zhou1, Anne Fennell2, and Madhav Nepal1.**

1Department of Biology & Microbiology; 2Department of Agronomy, 2Horticulture & Plant Science, South Dakota State University, Brookings, SD. (18-20) JUDGE

DIVERSITY OF DISEASE RESISTANCE GENES IN SUNFLOWER GENOME. **Surendra Neupane and Madhav P. Nepal.** Department of Biology and Microbiology, South Dakota State University, Brookings, SD. (18-21) JUDGE

The Effects of BPA on *Xenopus laevis****.* M. J. RistauUG and A. M. Kiesow.** Northern State University, Aberdeen, SD. (18-27) JUDGE

SOIL RESPIRATION OF A SOUTH DAKOTA SALINE/SODIC SOIL. **D. J. Fiedler, S. A. Clay, D. E. Clay, S. A. Bruggeman, Cheryl Reese, and Cole Berkley.** Department of Agronomy, Horticulture, and Plant Science, South Dakota State University, Brookings, SD. (18-36) JUDGE

Nutrients, Pesticides and Selenium in Agricultural Tile Discharges into Public Wetlands, Madison Wetland Management District, South Dakota. **Matthew S. Schwarz1, Bryan Schultz1, Drew R. Davis2, and Jacob L. Kerby2.** 1South Dakota Ecological Field Services Office, U.S. Fish and Wildlife Service, Pierre, SD; 2Department of Biology, University of South Dakota, Vermillion, SD. (18-35)

Identifying environmental risk factors and predicting the risk and of human West Nile virus in South Dakota. **A. Hess, J.K. Davis, and M.C. Wimberly.** Geospatial Sciences Center of Excellence, South Dakota State University, Brookings, SD. (18-37) JUDGE

Identification of Solar-Powered Nitrogen-fixing Cyanobacteria from the Topsoil of Native grasslands in South Dakota. **Nanfang Wang1,2**, **Shengni Tian1,3, Liping Gu1, Lan Xu4, Shaoshan Li2, and Ruanbao Zhou1.** 1Biology and Microbiology, South Dakota State University, Brookings, SD; 2College of Life Sciences, South China Normal University, Guangzhou, China; 3College of Life Sciences, Anhui Agricultural University, Hefei, China; 4Natural Resource Management, South Dakota State University, Brookings, SD. (18-39)

Engineering *Escherichia coli* Wto Produce Fragrant Linalool Using Beet Juice as the Sole Carbon Source. **Matthew McKillop1, Nanfang Wang1, Liping Gu1, William Gibbons1, Monono Ewumbua2, Dennis Wiesenborn2, and Ruanbao Zhou1**. 1Biology and Microbiology, South Dakota State University, Brookings, SD; 2Agricultural and Biosystems Engineering, North Dakota State University, Fargo, ND. (18-40)

IMPACTS OF STRATEGIC GRAZING AND FIRE ON SOIL SEED BANK HETEROGENEITY IN MIXED-GRASS PRAIRIE. **Kassidy WeathersUG\*, Lan Xu, and Patricia, S. Johnson.** Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-42) JUDGE

STOICHIOMETRIC HOMEOSTASIS IN TWO NATIVE AND TWO INVASIVE SOUTH DAKOTA GRASSES. **Joshua T. Harvey and A. Joshua Leffler.** Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-43) JUDGE

ASSESSING KINETICS OF ANTHRACENE CONVERSION TO ANTHRAQUINONE UNDER CLAY MINERAL AND TEMPERATURE REGIMES RELEVANT TO THE PRIMORDIAL EARTH. **H.L. JuntunenUG, B.K. PittsUG, V.A. SwensonUG, P. Videau, M.O. Gaylor.** College of Arts and Science, Dakota State University, Vermillion, SD. (18-44) JUDGE

USING HYPERCHEM AND GROMACS MODELING SOFTWARE TO INVESTIGATE THE BEHAVIOR OF A PLAUSIBLE PREBIOTIC REDUCED PHOSPHOLIPID DERIVED FROM METEORITIC SCHREIBERSITE**. L. J. Leinen1,UG, V. A. Swenson1,UG, A. Vanderwilt1, K. Rageth2, N. W. Fitch3, K. L. Cole4, P. Miro5, B. Vlaisavljevich5, P. Videau1, and M. O. Gaylor1.** 1College of Arts and Science, Dakota State University, Madison, SD; 2Sanford Health Biobank, Sioux Falls, SD; 3College of Medicine, Midwestern University, Glendale, AZ; 4Regis University, Denver, CO; 5Department of Chemistry, University of South Dakota, Vermillion, SD. (18-45) JUDGE

ASSESSING THE UTILITY OF COMMERCIAL PRESSURE COOKERS AS AUTOCLAVES. **V. A. Swenson 1, UG, M. O. Gaylor1, B. Ushijima2, N. M. Videau**3**, P. Videau1.** 1College of Arts and Science, Dakota State University, Madison, SD; 2College of Veterinary Medicine, Oregon State University, Corvallis, OR; 3School of Medicine, Wake Forest University, Winston-Salem, NC. (18-46) JUDGE

Disturbance Effects on Soil Hydrology in Northern Great Plains Grasslands. **Jacob Comer1, Laurent Ahiablame2, and Lora, Perkins1**. 1Department of Natural Resource Management; 2Agricultural and Biosystems Engineering, South Dakota State University, Brookings, SD. (18-48) JUDGE

Conversion of Phenolic Monomers from the Alkali Lignin using Subcritical water and Catalyst. **Balawanthrao Jadhav, Ranen Roy, and Douglas E. Raynie**. Department of Chemistry and Biochemistry, South Dakota State University, Brookings, SD. (18-49) JUDGE

IMPACTS OF INVASIVE TREES ON NESTING SUCCESS OF BREEDING BIRDS IN MISSOURI RIVER RIPARIAN FORESTS. **Amanda Hegg, Geoffrey Gray-Lobe, Sebastian Ruiz, Jason Emmick, Mark Dixon, and Dave Swanson.** Department of Biology, University of South Dakota, Vermillion, SD. (18-50) JUDGE

SPATIAL ANALYSIS OF FRESHWATER MUSSELS AND THEIR FISH HOSTS IN WADABLE STREAMS OF EASTERN SOUTH DAKOTA**. Katlyn BeeboutUG and Nels H. Troelstrup, Jr.** Department of Natural Resource Management,South Dakota State University, Brookings, SD. (18-53) JUDGE

Distribution and Ecological Impact of Russian Olive (*Elaeagnus angustifolia*) in South Dakota. **Peter M. Price and Lora B. Perkins**. Department of Natural Resource Management, South Dakota State University, Brookings, SD. (18-55)

EFFECTS OF ANTI-EPILEPTIC DRUGS ON *DANIO RERIO* DEVELOPMENT**. P. Homayounpour and A. M. Kiesow.** Department of Science and Mathematics, Northern State University, Aberdeen, SD. (18-57) JUDGE

The COMPARATIVE effects of visible and ultraviolet floral traits on *vanessa cardui* attraction and associative learning**. S. A. WesselUG, J. E. DuChenyUG, and A. M. Anderson.** Department of Biology, Northern State University, Aberdeen, SD. (18-58) JUDGE

Promoting vegetation heterogeneity with alternative grazing strategies to improve ecosystem services**. Luke Zilverberg, Jameson Brennan, Kassidy WeathersUG, Patricia Johnson, and Lan Xu**. Department of Natural Resource Management, Department of Plant Science, South Dakota State University, Brookings, SD. (18-74) JUDGE

Identification of Cell Surface Sugars in N2-fixing Cyanobacterium *Cyanothece* ATCC 51142 Using Fluorescein Labeled Lectins. **James Young, Michael Hildreth, and Ruanbao Zhou**. Department of Biology and Microbiology, South Dakota State University, Brookings, SD. (18-77) JUDGE

Plant community phenological change along two spatial gradients in Western Alaska. **Joshua Leffler1, Kathy Kelsey2, and Kaj Lynoe1.** 1Department of Natural Resource. Management, South Dakota State University, Brookings, SD; 2University of Alaska Anchorage, Anchorage, AK. (18-64)

Twitter as the most powerful engaging tool in the classroom**. Eman Shams.** Department of Chemistry and Biochemistry, South Dakota State University, Brookings, SD. (18-67) JUDGE

Visualization and Collection of Latent Fingerprints from Human Skin. **Quinn KoenenUG and Tamara K. Pease.** Forensic Science Program, Mount Marty College, Yankton, SD. (18-81) JUDGE

Printed Conductive and Resistive Wire Antennas**. Thomas P. Montoya and Thomas M. Wallace.** Electrical & Computer Engineering Department, South Dakota School of Mines & Technology, Rapid City, SD. (18-82)

N2-Fixing Cyanobacteria Harnessed for Biosolar Production of Nitrofertilizer**. Shengni Tian, Huilan Zhu, Liping Gu, and Ruanbao Zhou**. Biology and Microbiology, South Dakota State University, Brookings, SD. (18-84)

South Dakota Working in STEM for Equity (SD-WISE): A System, Institutional, and Individual Level Approach to Policy Change. **Cynthia Anderson1, Joyce Eduful2, Alyssa Kiesow3,Robin Miskimins4, Ashley Podhradsky5, Meredith Redlin2, Andrea Surovek6, and Elizabeth Tolman5.** 1Black Hills State University, Spearfish, SD; 2South Dakota State University, Brookings, SD; 3Northern State University, Aberdeen, SD; 4University of South Dakota, Vermillion, SD; 5Dakota State University, Madison, SD; 6South Dakota School of Mines and Technology, Rapid City, SD. (18-85)

Efficacy of Foliar Insecticides on soybean aphids in South Dakota. **Cole Dierks, Brady Hauswedell, Philip Rozeboom, and Adam J. Varenhorst.** South Dakota State University, Brookings, SD. (18-86) JUDGE

ANTI-PROLIFERATIVE ACTIVITY OF TRIAZOLE CUCURBITACIN-INSPIRED ESTRONE ANALOGS (CIEA) AGAINST BREAST CANCER CELL LINES. **C. M. WestlundUG, F. Acheampong, F. Alotaibi, and F. Halaweish.** Department of Chemistry and Biochemistry, South Dakota State University, Brookings, SD (18-89) JUDGE

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**Upcoming Meeting Locations**

2019 Mount Marty College, Yankton, SD. Contact person Chun Wu

2020 Northern State University, Aberdeen, SD. Contact person Alyssa Kiesow

2021 Black Hills State University, Spearfish, SD

Notes