

2016 Physical Electronics Conference Program

All oral presentations occur in the Reynolds Center Auditorium (RCED 120) located in the Donald W. Reynolds Center for Enterprise Development building. Breaks, vendors, and registration will be in the Reynolds Center atrium (RCED 101), just outside the auditorium. Posters will be displayed in room RCED 111, down the hall. Breakfast and lunch will be served in rooms RCED 103-107, adjacent to the atrium.

Monday, June 20, 2016

4:00 p.m. – 6:00 p.m. Registration – Maple Hill Dorm (1201 Cleveland Street)

6:00 p.m. – 8:00 p.m. Welcome Reception – University House
Registration – University House

Tuesday, June 21, 2016

7:00 a.m. – 8:00 a.m. Breakfast – Reynolds Center (RCED 103-107)
Registration (all day) – Reynolds Center (RCED atrium)
Setup Posters (RCED 111)

8:00 a.m. – 8:20 a.m. Opening Remarks (RCED 120)
Prof. Jim Rankin, Vice Provost for Research & Development
Prof. Julio Gea-Banacloche, Chair of Physics Department
Prof. Paul Thibado, Local PEC Chair

Session 1 Moderator: Prof. Pat Thiel, Iowa State University

8:20 a.m. – 8:40 a.m.

Density Functional Theory Study of Chemical Functionalization of Two-dimensional Materials
Tong Mou¹, Bin Wang¹

¹School of Chemical, Biological and Materials Engineering, University of Oklahoma, Norman, OK

8:40 a.m. – 9:00 a.m.

SAD-GLAD Pt-Ni @Ni nanorods as Highly Active Oxygen Reduction Reaction
Electrocatalysts

Mahbuba Begum¹, Nancy N. Kariuki², Mehmet F. Cansizoglu¹, Mesut Yurukcu¹, Fatma M. Yurtsever¹, Tansel Karabacak¹, and Deborah J. Myers²

¹Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock AR 72204, USA

²Chemical Sciences and Engineering Division, Argonne National Laboratory, Argonne, IL 60439-4837, USA

9:00 a.m. – 9:20 a.m.

Spatially Resolved Scanning Tunneling Spectroscopy of Single Layer Steps on Si(100) Surfaces: Experiment and Simulation

X.Wang^{1,2}, P. Namboodiri², K.Li², X.Deng², and R.Silver²

¹Chemical Physics Program, University of Maryland, College Park, MD, 20742, USA

²Engineering Physics Division, National Institute of Standard and Technology, Gaithersburg, MD

9:20 a.m. – 9:40 a.m.

Interrogating the superconductor $\text{Ca}_{10}(\text{Pt}_4\text{As}_8)(\text{Fe}_{2-x}\text{Pt}_x\text{As}_2)_5$ Layer-by-layer

Jisun Kim¹, Hyoungdo Nam², Guorong Li¹, A. B. Karki¹, Zhen Wang^{1,3}, Yimei Zhu³, Chih-Kang Shih², Jiandi Zhang¹, Rongying Jin¹, and E. W. Plummer¹

¹Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA 70803, USA

²Department of Physics, The University of Texas, Austin, TX 78712, USA

³Brookhaven National Laboratory, Upton, NY 11973, USA

9:40 a.m. – 10:00 a.m.

Coffee Break (RCED atrium)

Session 2

Moderator: Prof. Jak Chakhalian, University of Arkansas

10:00 a.m. – 10:20 a.m.

Revealing Previously Unknown Intracellular Organization of Bacterial Plasmids using Super-Resolution Microscopy

Y. Wang¹, P. Penkul², J. N. Milstein²

¹Department of Physics, University of Arkansas, 825 Dickson St, Fayetteville, AR, 72701, USA

²Department of Physics, Department of Chemical & Physical Sciences, University of Toronto, ON, Canada

10:20 a.m. – 10:40 a.m.

The 2D Selfassembly of Benzimidazole and its Co-crystallization

P. S. Costa¹, D. Miller², J. Teeter,³ James Hooper, S. Beniwal, A. Sinitskii, E. Zurek, and A. Enders²

¹Department of Physics and Astronomy, University of Nebraska-Lincoln, Lincoln, NE 68588, USA

²Department of Chemistry, State University of New York at Buffalo, Buffalo New York 14260-3000, USA

³Department of Chemistry, University of Nebraska-Lincoln, Lincoln, NE 68588, USA

⁴Department of Theoretical Chemistry, Faculty of Chemistry, Jagiellonian Univeristy, 30-060 Krakow, Poland

10:40 a.m. – 11:00 a.m.

Formation of bulk-like, two-dimensional CuSe on Cu(111) at ultra-low selenium coverage
P.A. Thiel^{1,2,3}, Holly Walen,^{1,4} Da-Jiang Liu,² Junepyo Oh,⁴ Hyun Jin Yang,⁴ and Yousoo Kim⁴

¹Department of Chemistry, Iowa State University, Ames, IA 50011

²Ames Laboratory, Ames, IA 50011

³Department of Materials Science & Engineering, Iowa State University, Ames, IA

⁴Surface and Interface Science Laboratory RIKEN, Wako, Saitama 351-0198 Japan

11:00 a.m. – 11:20 a.m.

Avoiding polar catastrophe in materials with high polar mismatch LaNiO₃/SrTiO₃(111)*
M. Saghayezhian, Z. Wang, H. Guo, J. Zhang, and E.W. Plummer

Department of Physics, Louisiana State University, Baton Rouge, LA, 70803, USA

11:20 a.m. – 12:00 p.m.

INVITED TALK:

New Device Frontiers for Electronic Nano-Materials

Jochen Mannhart

Max Planck Institute for Solid State Research, 70569 Stuttgart, Germany

12:00 p.m. – 1:00 p.m.

Lunch (RCED 103-107)

Session 3

Moderator: Prof. Jiali Li, University of Arkansas

1:00 p.m. – 1:20 p.m.

Understanding the Role of Electrons in Chemical Bond Breaking and Phase Transition

B. Wang

School of Chemical, Biological and Materials Engineering, University of Oklahoma, Norman, OK, 73019, USA

1:20 p.m. – 1:40 p.m.

Assembly and stability of metallic nanoclusters on metal(100) surfaces: Predictive atomistic modeling with ab-initio kinetics

Jim Evans¹, Patricia Thiel², and Yong Han¹

¹Department of Physics & Astronomy, Iowa State University, Ames, IA, 50011, USA

²Department of Chemistry, Iowa State University, Ames, IA, 50011, USA

1:40 p.m. – 2:00 p.m.

Spin-Lattice Coupling: the Essence in Magnetoelectric Digital Superlattices

Hangwen Guo¹, Zhen Wang^{1,2}, Shuai Dong³, Mohammad Saghayezhian¹, Lina Chen¹, Rongying Jin¹, Yimei Zhu², Jiandi Zhang¹ and E. W. Plummer¹

¹Department of Physical and Astronomy, Louisiana State University, Tower Dr., Baton Rouge, LA, 70803, USA

²Department of Energy Science and Technology, Brookhaven National Laboratory, Upton, NY, 11973, USA

³Department of Physics, Southeast University, Nanjing, Jiangsu, 211189, China

2:00 p.m. – 2:40 p.m.

INVITED TALK:

Ferroelectric-based heterostructures

S. Boyn, A. Sander, R. O. Cherifi, A. Chanthbouala, L. Phillips, V. Ivanovskaya, H. Yamada, V. Garcia, S. Fusil, C. Carretero, J. Grollier, M. Bibes, A. Barthélémy

Unité Mixte de Physique CNRS / Thales, 1 av. Fresnel, 91767 Palaiseau & Université Paris-Sud, 91405 Orsay, France

B. Dkhil

Laboratoire SPMS, ECP, Grande voie des vignes, 92290 Châtenay-Malabry, France

A. Zobelli, A. Gloter

Laboratoire de Physique des Solides, Université Paris-Sud, 91405 Orsay, France

S. Valencia

Helmholtz Zentrum Berlin für Materialien und Energie, Albert-Einstein-Strasse 15, 12489 Berlin, Germany

2:40 p.m. – 3:00 p.m.

Coffee Break (RCED atrium)

3:00 p.m. – 5:00 p.m.

Poster Session (RCED 111)

Poster 1

Cholesterol Influence on Arginine-Containing Transmembrane Peptides

Jordana K. Thibado¹, Ashley N. Martfeld¹, Denise V. Greathouse¹, Roger E. Koeppe II¹

¹Department of Chemistry and Biochemistry, University of Arkansas, Fayetteville, AR, 72701, USA

Poster 2

Determination of the Effect of Maillard Products on the Taxonomic Composition on the Gut Microbiota

ALJahdali N.,^{1*} Gadonna P.,² Anton-Gay P.,² Carbonero F.^{1,3}

¹Cellular and Microbiology Program; University of Arkansas, AR, USA

²Expression des Gènes et régulation Epigénétique par l'Aliment; Institut Polytechnique LaSalle, Beauvais, France

³Department of Food Science; University of Arkansas, AR, USA

Poster 3

Synthesis and characterization of nickel oxide thin film and nanoparticles for hole transport in an all-inorganic colloidal quantum dot LED

R. Vasan¹, H. Salman², and M. O. Manasreh¹

¹Department of Electrical Engineering, University of Arkansas, Fayetteville, AR, USA-72701

²Microelectronics and Photonics program, University of Arkansas, Fayetteville, AR, USA-72701

Poster 4

Measuring functional implications of inhomogeneous Acetylcholine distribution in cerebral cortex

T. Nur¹, S. H. Gautam², J. A. Stenken³ and W. L. Shew²

¹Department of Microelectronics and Photonics, University of Arkansas, 731 West Dickson Street, Fayetteville, AR, 72701, USA

²Department of Physics, University of Arkansas, 825 West Dickson Street, Fayetteville, AR, 72701, USA

³Department of Chemistry & Biochemistry, University of Arkansas, 1 University of Arkansas, Fayetteville, AR, 72701, USA

Poster 5

Revealing Bacterial Responses to Environmental Changes using Super-Resolution Microscopy
Sai Divya Challapalli¹ and Yong Wang²

¹Department of Micro Electronics & Photonics, University of Arkansas, 731 W. Dickson ST. Fayetteville, AR 72701

²Department of Physics, University of Arkansas, 825 W. Dickson St. Fayetteville, AR 72701

Poster 6

Understanding electron energy loss mechanisms in EUV resists using photoemission and electron energy loss spectroscopies

James P. Horwath¹, Sylvie Rangan¹, Robert Allen Bartynski¹, Amrit Narasimhan², Robert Brainard² and Mark Neisser³

¹Department of Physics and Astronomy, Rutgers University, 136 Frelinghuysen, Piscataway, NJ, USA

²SUNY Polytechnic Institute, College of Nanoscale Science and Engineering, 257 Fuller, Albany, NY, USA

³SUNY Polytechnic Institute SEMATECH, 257 Fuller Road, Albany, 12203 NY, USA

Poster 7

Measuring Nonlinear properties of Graphene Thin Films Using Z-Scan Technique

A. AlAbdulaal¹ and G. Salamo¹

¹Microelectronics Photonics Program, Department of Physics, Institute for Nanoscience and Engineering, University of Arkansas, Fayetteville, AR 72701, USA

Poster 8

Transport Properties of Cobalt Doped ZnO/p-Si Heterojunction Using Impedance Analysis and Exciton Lifetime Measurement

A. Kaphle¹, R. Tiwari¹ and P. Hari¹

¹Department of Physics, University of Tulsa, 800 S Tucker Dr, Tulsa, OK, 74104, USA.

Poster 9

Direct Two-photon Absorption Induced Emission of InAs/GaAs Quantum dots

X.Hu^{1,2}, D.Guzun², M.E.Ware^{2,3}, Yu.I.Mazur², G.J.Salamo^{1,2}

¹Department of Physics, University of Arkansas, 825 W. Dickson St., Fayetteville, AR, 72701, USA

²Institute of Nano Science and Engineering, University of Arkansas, Fayetteville, AR, 72701, USA

³Department of Electrical Engineering, University of Arkansas, Bell Engineering, Fayetteville, AR, USA

Poster 10

Investigation the conditions of the conformal shell layers formed by different types of PVD techniques on different aspect ratio nanorods arrays.

M. Yurukcu¹, H. Cansizoglu², F. Cansizoglu³ and T. Karabacak¹

¹Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, AR, 72211, United States

²Department of Electrical and Computer Engineering, University of California, Davis, CA, 95616, United States

³Green Center for Systems Biology, University of Texas Southwestern Medical Center, Forest Park, Dallas, TX, 75390, United States

Poster 11

Dual-width plasmonic gratings with tunable optical enhancement for Raman spectroscopy substrates

S. J. Bauman¹, A. A. Darweesh¹, G. P. Abbey², A. M. Hill³, and J. B. Herzog³

¹Microelectronics-Photonics Graduate Program, University of Arkansas, Fayetteville, AR, 72701, USA

²Mississippi State University, 75 B. S. Hood Rd, Mississippi State University, MS, 39762, USA

³Department of Physics, University of Arkansas, 825 W. Dickson St., Fayetteville, AR, 72701, USA

Poster 12

Digitization and Additive Manufacturing of Natural Surfaces

M. Afshar-Mohajer¹, M. Zou¹

¹Department of Mechanical Engineering, University of Arkansas, Fayetteville, AR, 72701, USA

Poster 13

Photoluminescence study of InN/GaN multi-quantum well under biaxial strain

Y. Wu¹, C. Li¹, A. Kuchuk¹, M. E. Ware² and G. Salamo³

¹Microelectronics and Photonics Program, University of Arkansas, Fayetteville, AR 72701, USA

²Department of Electrical Engineering, University of Arkansas, Fayetteville, AR 72701, USA

³Department of Physics, University of Arkansas, Fayetteville, AR 72701, USA

Poster 14

ELECTROCHEMICAL-STM INVESTIGATION OF SILVER HALIDE MONOLAYERS ON A Au(111) SURFACE

J.A. Phillips¹, L. Jackson, H. Morgan, G. Jones, E.V. Iski¹ and S. Wang²

¹Department of Chemistry and Biochemistry, University of Tulsa, 800 S. Tucker Dr., Tulsa, OK, USA

²Department of Physics and Engineering Physics, University of Tulsa, 800 S. Tucker Dr., Tulsa, OK, USA

Poster 15

Surface Texturing for Friction Reduction via 3D Printing

R. Araujo Borges¹ and M. Zou¹

¹Department of Mechanical Engineering, University of Arkansas, 863 West Dickson Street, Fayetteville, AR, 72701, USA

Poster 16

The nature of metal-insulator transition in ultrathin SrVO₃ films*

Gaomin Wang¹, Zhen Wang², Chen Chen¹, Mohammad Saghayezhian¹, Lina Chen¹, Hangwen Guo¹, Yimei Zhu², Ward Plummer¹ and Jiandi Zhang²

¹Department of Physics and Astronomy, Louisiana State University, Baton Rouge, LA, 70803, USA

²Brookhaven National Laboratory, Upton, NY, 11973, USA

Poster 17

Engineered Surfaces with Deformation-Resistant Core-Shell Nanostructures

R. Fleming^{1,2} and M. Zou^{1,2}

¹Department of Mechanical Engineering, University of Arkansas, Fayetteville, AR, 72701, USA

²Center for Advanced Surface Engineering, University of Arkansas, Fayetteville, AR, 72701, USA

Poster 18

SrRuO₃ (111) thin films with persistent ($\sqrt{3} \times \sqrt{3}$)R30° surface reconstruction*

Weimei Xie^{1,2}, M. Saghayezhian², X.M. Gu¹, Hangwen Guo², Chen Chen², X.S. Wu¹, E.W. Plummer² and Jiandi Zhang²

¹ Collaborative Innovation Center of Advanced Microstructures, Lab of Solid State Microstructures, School of Physics, Nanjing University, Nanjing 210093, China

² Dept. of Physics & Astronomy, Louisiana State University, Baton Rouge, LA 70803, USA

Poster 19

Surface structural phase transition of IrTe₂ studied by LEED

Yifan Yang, Chen Chen, Guixin Cao, Rongying Jin, E. W. Plummer

Department of Physics & Astronomy, Louisiana State University, Baton Rouge, Louisiana, USA

Poster 20

Bias-dependent rotation of thiol-tethered molecules on Au(111)

L. Ríos*, J. Lee, N. Tallarida and V. Ara Apkarian

Department of Chemistry, University of California Irvine, 1120 Natural Sciences, Irvine, CA, USA

Poster 21

Real-Space Analysis of Scanning Tunneling Microscope Images: Accurate measurements of local structure and disorder

Mitchell P. Yothers and Lloyd A. Bumm

Homer L. Dodge Department of Physics & Astronomy, The University of Oklahoma, Norman, OK, USA

Poster 22

Local Dynamics and Disorder of the Terminal Methyl Groups in *n*-Alkanethiol Self-Assembled Monolayers on Au(111): A molecular dynamics study

S. Bhattacharya¹, L. Huang², and L. A. Bumm¹

¹Homer L. Dodge Department of Physics & Astronomy, The University of Oklahoma, 440 W. Brooks St., Norman, OK 73019, USA

²School of Chemical, Biological and Materials Engineering, The University of Oklahoma, 100 E. Boyd St., Norman, OK 73019, USA

Poster 23

Exploring Macro Porous Silicon as a Substrate for Heterojunction Solar Cells

N. Shahabi Sani, Y. Cheng, N. Kantack, V.R. Whiteside, I. R. Sellers, and L. A. Bumm

Homer L. Dodge Department of Physics & Astronomy, The University of Oklahoma, 440 W. Brooks St., Norman, OK 73019, USA

Poster 24

Electronic states and optical transitions in the semiconductor layered biconical quantum dot

A. A. Tshantshapanyan, K. G. Dvovyan and B. Vlahovic

Department of Mathematics and Physics, North Carolina Central University, 1801 Fayetteville St., Durham, NC 27707, USA

Poster 25

Vertical electrical field induced monolayer island growth on TiSe₂

H. Zheng¹, S. Valtierra², N. Opoku², C. Chen¹, L. Jiao³, K. Bevan², and C. Tao¹

¹Department of Physics, Virginia Tech, Blacksburg, Virginia 24061, USA

²Materials Engineering, McGill University, Montreal, H3A 0C5, Canada

³Department of Chemistry, Tsinghua University, Beijing 100084, China

Wednesday, June 22, 2016

7:00 a.m. – 8:00 a.m. Breakfast – Reynolds Center (RCED 103-107)
Registration (all day) – Reynolds Center (RCED atrium)

Session 4 Moderator: Prof. Arun Nair, University of Arkansas

8:00 a.m. – 8:20 a.m.
Sensing the binding sites of RNAP Holoenzyme on λ phage DNA attached to a probe tip with Solid State Nanopores

H.Kaur* and J. Li

***Nottingham Contestant**

¹Department of Physics, University of Arkansas, 825 W Dickson Street, Fayetteville, AR, 72701, USA

8:20 a.m. – 8:40 a.m.

Atomically Precise Design, Synthesis, and Characterization of 2D Material Interfaces

B. Kiraly^{1,2*}, M. C. Hersam^{1,3}, N. P. Guisinger²

***Nottingham Contestant**

¹ Department of Materials Science and Engineering, Northwestern University, Evanston, Illinois 60208, USA

² Center for Nanoscale Materials, Argonne National Laboratory, Argonne, Illinois 60439, United States

³ Department of Chemistry, Northwestern University, Evanston, Illinois 60208, United States

8:40 a.m. – 9:00 a.m.

Xe Irradiation of Graphene on Ir(111): From Trapping to Blistering

C. Herbig* and T. Michely

***Nottingham Contestant**

¹II. Physikalisches Institut, University of Cologne, Zulpicher Str. 77, Cologne, 50937, Germany

9:00 a.m. – 9:20 a.m.

Interfacial Engineering of Electronic and Magnetic States in Complex Oxide Heterostructures by Pulsed Laser Deposition Technique

Xiaoran Liu* and J. Chakhalian

***Nottingham Contestant**

¹Department of Physics, University of Arkansas, 825 W. Dickson Street, Fayetteville, AR 72701, USA

9:20 a.m. – 9:40 a.m.

Electronic structure and first order structural transition of LuFeO₃

Shi Cao* and Peter Dowben

***Nottingham Contestant**

¹Department of Physics and Astronomy, Nebraska Center for Materials and Nanoscience
University of Nebraska-Lincoln, Lincoln, NE 68588, USA

9:40 a.m. – 10:00 a.m.

Coffee Break (RCED atrium)

Session 5

Moderator: Prof. Paul Thibado, University of Arkansas

10:00 a.m. – 10:20 a.m.

Hidden Phases of Double-layered Sr₃(Ru_{1-x}Mn_x)₂O₇ Exposed at the Surface

Chen Chen* and E. W. Plummer

***Nottingham Contestant**

¹Department of Physical and Astronomy, Louisiana State University, Tower Dr., Baton Rouge, LA, 70803, USA

10:20 a.m. – 10:40 a.m.

Electronic Phase Control in Electrolyte-Gated Correlated Oxides

Y. Zhou*¹ and S. Ramanathan^{1,2}

***Nottingham Contestant**

¹John A. Paulson School of Engineering and Applied Sciences, Harvard University, Cambridge, MA 02138, USA.

²School of Materials Engineering, Purdue University, West Lafayette, IN 47907, USA.

10:40 a.m. – 11:00 a.m.

Effect of Ligand Exchange with Mercaptoacetic Acid on the Photoresponsivity of Near-IR Photodetectors Based on PbSe Nanocrystals

Ahmad Nusir* and Omar Manasreh

***Nottingham Contestant**

Department of Electrical Engineering, University of Arkansas, Fayetteville, AR 72701, USA

11:00 a.m. – 11:20 a.m.

Exploring Intermolecular Interactions by Imaging Single Bonds with the Scanning Tunneling Microscope

Zhumin Han*^{1,2} and Wilson Ho^{1,2}

***Nottingham Contestant**

¹Department of Physics and Astronomy, University of California, Irvine, California 92697-4575

²Department of Chemistry, University of California, Irvine, California 92697-2025

11:20 a.m. – 12:00 p.m.

INVITED TALK:

Mechanical engineering considerations for advanced application CPUs

Jonathan W. Thibado

PMCI Manager, Principal Engineer, Intel Corporation

12:00 p.m. – 1:00 p.m. Lunch (RCED 103-107)

Session 6

Moderator: Prof. Omar Manasreh, University of Arkansas

1:00 p.m. – 1:20 p.m.

Core level shifts of doped graphene

U. A. Schröder* and T. Michely

***Nottingham Contestant**

Physikalisches Institut, Universität zu Köln, Zùlpicher Str. 77, 50937 Köln, Germany

1:20 p.m. – 1:40 p.m.

Coupling Organic Molecules to Topological Insulators

Andy S. Hewitt* and Daniel B. Dougherty

***Nottingham Contestant**

Department of Physics, University of North Carolina State University, Raleigh, NC, 27606, USA

1:40 p.m. – 2:00 p.m.

Surface Reactivity of Pt-Cu(111) Single Atom Alloys:

Model Studies that Guide the Design of Atom Efficient Pt Nanoparticle Catalysis

F. R. Lucci* and E. C. H. Sykes

***Nottingham Contestant**

Department of Chemistry, Tufts University, 62 Talbot Avenue, Medford, MA, 02155 USA

2:00 p.m. – 2:20 p.m.

Synthesis and Characterization of MoS₂ thin films by Pulsed Laser Deposition for Electronic Applications

Martha I. Serna*[†], Seong H. Yoo[‡], Thesis adviser: Manuel A. Quevedo-Lopez[†]

***Nottingham Contestant**

¹Materials Science and Engineering Department, The University of Texas at Dallas, Richardson, TX, USA

²Department of Advanced Materials Engineering, Kookmin University, Seoul, Korea

³Mechanical Engineering Department, The University of Texas at Dallas, Richardson, TX, USA

⁴Core Labs, King Abdullah University of Science and Technology (KAUST), Thuwal, Saudi Arabia

2:20 p.m. – 2:40 p.m.

Zinc(II) Tetraphenylporphyrin on Ag(100) and Ag(111): Multilayer Desorption and Dehydrogenation

C. Ruggieri* and R.A. Bartynski

***Nottingham Contestant**

Department of Physics and Astronomy, Rutgers, The State University of New Jersey, Piscataway, NJ 08854, USA

2:40 p.m. – 3:00 p.m.

Coffee Break (RCED atrium)

Session 7

Moderator: Prof. Robert Coridan, University of Arkansas

3:00 p.m. – 3:20 p.m.

Electrical Control of Chiral Phases in Electrotoroidic Nanocomposites

R. Walter*^{1,2} and L. Bellaiche¹**

***Nottingham Contestant, **PhD Advisor to Contestant**

¹Physics Department and Institute for Nanoscience and Engineering, University of Arkansas, Fayetteville, AR 72701

²Mathematics Department, University of Arkansas, Fayetteville, AR 72701

3:20 p.m. – 3:40 p.m.

Spin-Polarized Interfacial Hybridization between different 8-hydroxyquinolates and Cr(001) surface

J. Wang* and D. B. Dougherty

***Nottingham Contestant**

¹Department of Physics, North Carolina State University, Raleigh, NC, 27695, USA

3:40 p.m. – 4:00 p.m.

Low-dimensional Organics for Electronics Applications

S. Beniwal* and A. Enders

***Nottingham Contestant**

Department of Physics & Astronomy, University of Nebraska, Lincoln, NE

4:00 p.m. – 4:20 p.m.

Van der Waals Epitaxy of WSe₂ Based Heterostructures: A Study of Controlled Nucleation and Grain Morphology

Ruoyu Yue* and Christopher Hinkle

***Nottingham Contestant**

Department of Materials Science and Engineering, University of Texas at Dallas, Richardson, TX 75080-3021, USA

4:20 p.m. – 4:40 p.m.

Layer-by-layer interrogation of $\text{La}_{2/3}\text{Sr}_{1/3}\text{MnO}_3$ films on SrTiO_3 (001)

Lina Chen* and Jiandi Zhang and E.W. Plummer

***Nottingham Contestant**

Department of Physics and Astronomy, Louisiana State University, Tower Dr. , Baton Rouge, La, 70803, USA

4:40 p.m. – 5:00 p.m.

Characterization of a gate-defined double quantum dot in a Si/SiGe nanomembrane

T. J. Knapp* and M. A. Eriksson

***Nottingham Contestant**

Wisconsin Institute for Quantum Information, University of Wisconsin—Madison, Madison, WI 53706-1390, USA

5:00 p.m. – 6:00 p.m.

Break before banquet, take down posters

6:00 p.m. – 8:00 p.m.

Banquet at Raymond Miller Hall of Champions

8:00 p.m. – 10:00 p.m.

Dickson Street Nottingham Prize Celebration

Thursday, June 23, 2016

6:30 a.m. – 8:00 a.m.

Check out of Maple Hill Dorms (take luggage to RCED)

7:00 a.m. – 8:00 a.m.

Breakfast – Reynolds Center (RCED 103-107)

Session 8

Moderator: Prof. Nicholas Materer, Oklahoma State University

8:00 a.m. – 8:20 a.m.

Synthesis of Two-Dimensional MoS_2 by a CVD Process

Yan Jiang*, Jingbiao Cui

Department of Physics and Materials Science, University of Memphis, 216 Manning Hall, Memphis, TN, 38152, USA

8:20 a.m. – 8:40 a.m.

Reaction of Dysprosium with Graphite Surface: Competition between Carbide Formation and Surface Intercalation

Ann Lii-Rosales^{1,2}, Yinghui Zhou^{2,5}, Mark Wallingford², Cai-Zhuang Wang^{2,4}, Michael Tringides^{2,4}, and P.A. Thiel^{1,2,3}

¹Department of Chemistry, Iowa State University, Ames, IA 50011, USA

²The Ames Laboratory, Ames, IA 50011, USA

³Department of Materials Science & Engineering, Iowa State University, Ames, IA 50011, USA

⁴Department of Physics & Astronomy, Iowa State University, Ames, IA 50011, USA

⁵Department of Physics, Xiamen University, Xiamen 361005, China

8:40 a.m. – 9:00 a.m.

Elucidating the mechanism of heterogeneous acetaldehyde oxidation on polycrystalline platinum through flow cell studies

S. C. Edington^{1,*} and S. L. Bernasek¹

¹Department of Chemistry, Princeton University, Frick Laboratory, Washington Road, Princeton, NJ, 08544, USA

*Current address: Department of Chemistry, University of Texas at Austin, 102 E. 24th Street, Austin, TX, USA

9:00 a.m. – 9:20 a.m.

Adsorption of Ammonia and Water on Metal-supported Iron Phthalocyanine

Reda Bababrik, Bin Wang

Center for Interfacial Reaction Engineering and School of Chemical, Biological and Materials Engineering, the University of Oklahoma, Norman, 73019-1004 Oklahoma, USA

9:20 a.m. – 9:40 a.m.

Anomalously Deep Polarization in SrTiO₃(001) Interfaced with an Epitaxial Ultrathin Manganite Film*

Zhen Wang^{1,2}, Jing Tao², Liping Yu³, Hangwen Guo¹, Lina Chen¹, Myung-Geun Han², Lijun Wu², Huolin Xin², Kim Kisslinger², E. W. Plummer¹, Jiandi Zhang¹, and Yimei Zhu²

¹Department of Physics & Astronomy, Louisiana State University, Baton Rouge, LA 70803

²Department of Energy Science and Technology, Brookhaven National Laboratory, Upton, NY

³Department of Physics, Temple University, Philadelphia, PA 19122

9:40 a.m. – 10:00 a.m.

Coffee Break (RCED atrium)

Session 9

Moderator: Prof. Ryan Tian, University of Arkansas

10:00 a.m. – 10:20 a.m.

Titania Containing Thin Films for the Detection of TATP and Peroxide Vapors

Nicholas F. Materer¹, Travis H. James¹, Zeid AlOthman² and Allen Apblett¹

¹Department of Chemistry, Oklahoma State University, Stillwater, Oklahoma 74078-3071

²Chemistry Department, College of Science, King Saud University, Riyadh-11451, Kingdom of Saudi Arabia

10:20 a.m. – 10:40 a.m.

Epitaxial Growth of Graphene Nanoribbons on Cu(111)

J. Teeter¹, P. Costa², M. Pour¹, A. Enders², and A. Sinitskii¹

¹Department of Chemistry, University of Nebraska - Lincoln, Lincoln, Nebraska 68588, United States

²Department of Physics and Astronomy, University of Nebraska - Lincoln, Lincoln, Nebraska 68588, United States

10:40 a.m. – 11:00 a.m.

Enhanced Photoresponsivity by HIPS-GLAD and SAD-GLAD core/shell nanorod array photodetectors

F. Keles, H. Cansizoglu and T. Karabacak

Department of Physics and Astronomy, University of Arkansas at Little Rock, Little Rock, AR, 72204, USA

11:00 a.m. – 11:20 a.m.

The Manipulation and Analysis of ZnO Nanorods with Applications for Photovoltaic Devices

E. Adcock Smith¹, A. Kaphle², P. Hari² and K.P. Roberts¹

¹ Department of Chemistry, University of Tulsa, 800 S. Tucker, Tulsa, Ok, 74104, USA

² Department of Physics, University of Tulsa, 800 S. Tucker, Tulsa, Ok, 74104, USA

11:20 a.m. – 11:30 a.m. Closing Remarks

11:30 a.m. – 12:30 p.m. Box Lunch (RCED 103-107)

12:00 p.m. Free one-way shuttle to XNA, Crystal Bridges, 21C Hotel (last stop)
