

REPORT DOCUMENTATION PAGE			1	Form Approved OMB NO. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 18-09-2014		2. REPORT TYPE Final Report		3. DATES COVERED (From - To) 15-Aug-2014 - 14-Dec-2014	
4. TITLE AND SUBTITLE Final Report: 2014 Defects in Semiconductors Gordon Research Conference & Gordon Research Seminar Research area 1. Materials Science - 1.3 Physical Properties of Materials			5a. CONTRACT NUMBER W911NF-14-1-0576		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER 611102		
6. AUTHORS Christian M Wetzel, Audrius Alkauskas			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAMES AND ADDRESSES Gordon Research Conferences, Inc. 512 Liberty Lane West Kingston, RI 02892 -1502			8. PERFORMING ORGANIZATION REPORT NUMBER		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS (ES) U.S. Army Research Office P.O. Box 12211 Research Triangle Park, NC 27709-2211			10. SPONSOR/MONITOR'S ACRONYM(S) ARO		
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12. DISTRIBUTION AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited					
13. SUPPLEMENTARY NOTES The views, opinions and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision, unless so designated by other documentation.					
14. ABSTRACT The Gordon Research Conference on DEFECTS IN SEMICONDUCTORS was held at Bentley University in Waltham, Massachusetts, August 3-8, 2014. The Conference was well-attended with 98 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 98 attendees, 46 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 46 respondents, 20% were Hispanic, 20% Hispanic, 26% Asian and 20% African American.					
15. SUBJECT TERMS Final Report					
16. SECURITY CLASSIFICATION OF:		17. LIMITATION OF ABSTRACT		15. NUMBER OF PAGES	
a. REPORT UU	b. ABSTRACT UU	c. THIS PAGE UU	UU	19a. NAME OF RESPONSIBLE PERSON Christian Wetzel	
				19b. TELEPHONE NUMBER 518-276-3755	

Report Title

Final Report: 2014 Defects in Semiconductors Gordon Research Conference & Gordon Research Seminar Research area 1. Materials Science - 1.3 Physical Properties of Materials

ABSTRACT

The Gordon Research Conference on DEFECTS IN SEMICONDUCTORS was held at Bentley University in Waltham, Massachusetts, August 3-8, 2014. The Conference was well-attended with 98 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 98 attendees, 46 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 46 respondents, 30% were Minorities – 2% Hispanic, 26% Asian and 2% African American. Approximately 19% of the participants at the 2014 meeting were women.

The Gordon Research Seminar on DEFECTS IN SEMICONDUCTORS was held Bentley University, Waltham, Massachusetts, August 2-3, 2014. The Seminar was well-attended with 32 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 32 attendees, 14 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 25 respondents, 14% were Minorities – 0% Hispanic, 14% Asian and 0% African American. Approximately 5% of the participants at the 2014 meeting were women.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. Attached is a copy of the formal schedule and speaker program and the poster program. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field.

Thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Sincerely,
Christian M Wetzel, Conference Chairperson
Rensselaer Polytechnic Institute

Sincerely,
Audrius Alkauskas, Seminar Chairperson
University of California Santa Barbara

Enter List of papers submitted or published that acknowledge ARO support from the start of the project to the date of this printing. List the papers, including journal references, in the following categories:

(a) Papers published in peer-reviewed journals (N/A for none)

Received

Paper

TOTAL:

Number of Papers published in peer-reviewed journals:

3

(b) Papers published in non-peer-reviewed journals (N/A for none)

Received Paper

TOTAL:

Number of Papers published in non peer-reviewed journals:

(c) Presentations

Number of Presentations: 0.00

Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

Number of Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

Number of Peer-Reviewed Conference Proceeding publications (other than abstracts):

(d) Manuscripts

Received Paper

TOTAL:

Number of Manuscripts:

Books

Received Book

TOTAL:

Received Book Chapter

TOTAL:

Patents Submitted

Patents Awarded

Awards

Graduate Students

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Post Doctorates

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Faculty Supported

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Under Graduate students supported

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Student Metrics

This section only applies to graduating undergraduates supported by this agreement in this reporting period

The number of undergraduates funded by this agreement who graduated during this period: 0.00

The number of undergraduates funded by this agreement who graduated during this period with a degree in science, mathematics, engineering, or technology fields:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and will continue to pursue a graduate or Ph.D. degree in science, mathematics, engineering, or technology fields:..... 0.00

Number of graduating undergraduates who achieved a 3.5 GPA to 4.0 (4.0 max scale):..... 0.00

Number of graduating undergraduates funded by a DoD funded Center of Excellence grant for Education, Research and Engineering:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and intend to work for the Department of Defense 0.00

The number of undergraduates funded by your agreement who graduated during this period and will receive scholarships or fellowships for further studies in science, mathematics, engineering or technology fields:..... 0.00

Names of Personnel receiving masters degrees

<u>NAME</u>
Total Number:

Names of personnel receiving PhDs

NAME

Total Number:

Names of other research staff

NAME

PERCENT SUPPORTED

FTE Equivalent:

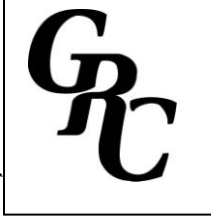
Total Number:

Sub Contractors (DD882)

Inventions (DD882)

Scientific Progress

Technology Transfer



Nancy Ryan Gray, Ph.D.
Director

GORDON RESEARCH CONFERENCES *frontiers of science*
512 Liberty Lane, West Kingston, RI 02892
World Wide Web: <http://www.grc.org>

**2014 GORDON RESEARCH CONFERENCE & SEMINAR
on DEFECTS IN SEMICONDUCTORS**

FINAL PROGRESS REPORT

ARMY RESEARCH OFFICE
GRANT NO. W911NF-14-1-0576

The Gordon Research Conference on DEFECTS IN SEMICONDUCTORS was held at Bentley University in Waltham, Massachusetts, August 3-8, 2014. The Conference was well-attended with 98 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 98 attendees, 46 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 46 respondents, 30% were Minorities – 2% Hispanic, 26% Asian and 2% African American. Approximately 19% of the participants at the 2014 meeting were women.

The Gordon Research Seminar on DEFECTS IN SEMICONDUCTORS was held Bentley University, Waltham, Massachusetts, August 2-3, 2014. The Seminar was well-attended with 32 participants (attendees list attached). The attendees represented the spectrum of endeavor in this field coming from academia, industry, and government laboratories, both U.S. and foreign scientists, senior researchers, young investigators, and students. Of the 32 attendees, 14 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 25 respondents, 14% were Minorities – 0% Hispanic, 14% Asian and 0% African American. Approximately 5% of the participants at the 2014 meeting were women.

In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field. There was a conscious effort to stimulate lively discussion about the key issues in the field today. Time for formal presentations was limited in the interest of group discussions. In order that more scientists could communicate their most recent results, poster presentation time was scheduled. Attached is a copy of the formal schedule and speaker program and the poster program. In addition to these formal interactions, "free time" was scheduled to allow informal discussions. Such discussions are fostering new collaborations and joint efforts in the field.

Thank you for your support of this Conference. As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings. If you wish any further details, please feel free to contact me. Thank you.

Sincerely,
Christian M Wetzels, Conference Chairperson
Rensselaer Polytechnic Institute

Sincerely,
Audrius Alkauskas, Seminar Chairperson
University of California Santa Barbara

DEFECTS IN SEMICONDUCTORS

August 3-8, 2014
Bentley University
Waltham, MA

Chair:

Christian M. Wetzel

Vice Chair:

Martin Brandt

Energy efficiency in power distribution and conversion more than ever relies on semiconductor power switching transistors, solar cells, and light emitting diodes. Be they highest voltage blocking normally-off switches for hybrid cars, ultralow cost solar collection materials or tunable color solid state lighting sources - they all have in common that primarily and foremost their performance is controlled by defects in semiconductors.

This meeting therefore aims to bring together the worldwide leading scientists on the topic as well as their hopeful aspirants to a week of off-the records intensive discussion and thought exchange. By blending lecture hall discourse, social gatherings, and sportive outings we will be able to share and learn the latest of practical and academic concern in the performance of a wide range of semiconductors.

We plan to invite leading experts from the full range of industry to academia to cover the topics of wide bandgap nitride and oxide semiconductors, the graphene-like layered materials, novel photovoltaic materials, organic semiconductors and the likes in bulk, film, or nanostructured forms. We anticipate to cover the topics of defect formation, characterization, and avoidance. This includes all relevant aspects of point, line, and cluster defects, their detection, and their relevance to the desired performance.

The meeting is scheduled for the week leading up to the **International Conference on the Physics of Semiconductors, ICPS-2014** in Austin Texas at our new location just outside of Boston, MA.

Contributors

SUNDAY

- 2:00 pm - 9:00 pm Arrival and Check-in
- 6:00 pm Dinner
- 7:30 pm - 7:40 pm Welcome / Introductory Comments by GRC Site Staff
- 7:40 pm - 8:25 pm **Power Electronics for Economy**
- Discussion Leader: **Christian Wetzel** (Rensselaer)
- 7:40 pm - 8:10 pm **Krishna Shenai** (Argonne National Laboratory)
"Defects in Wide Bandgap Power Semiconductors"
- 8:10 pm - 8:25 pm Discussion
- 8:25 pm - 9:30 pm **Organic Semiconductors for Abundance**
- 8:25 pm - 8:45 pm Discussion Leader: **K.V. Lakshmi** (Rensselaer)
"Introduction"
- 8:45 pm - 9:15 pm **Alan J. Drew** (Queen Mary University London)
"Inorganic-Organic Interfaces and Defects in Organic Spintronics"
- 9:15 pm - 9:30 pm Discussion

MONDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Elemental and Compound Semiconductor for Cost**
- 9:00 am - 9:10 am Discussion Leader: **Jörg Weber** (TU Dresden)
"Introduction"
- 9:10 am - 9:40 am **Robert Kudrawiec** (Wrocław University of Technology)
"Photoreflectance in Dilute III-Vs"
- 9:40 am - 9:50 am Discussion
- 9:50 am - 10:20 am **Nick Cowern** (Newcastle University)
"Extended Point Defects in Silicon and Germanium"
- 10:20 am - 10:30 am Discussion
- 10:30 am Coffee Break
- 11:00 am - 11:30 am **Uwe Gerstmann** (University of Paderborn)
"First Principles Calculations of Spins, Defects in Semiconductors"
- 11:30 am - 11:40 am Discussion
- 11:40 am - 12:10 pm **Akira Uedono** (Tsukuba University)
"Positron Annihilation Studies in InGaN"
- 12:10 pm - 12:30 pm Discussion

12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session I</u>
6:00 pm	Dinner
7:30 pm - 9:30 pm	Magnetics for Functionality
7:30 pm - 7:40 pm	Discussion Leader: Tomasz Dietl (Polish Academy of Science)
7:40 pm - 8:20 pm	Alberta Bonanni (Johannes Kepler University) "Magnetic Impurities in Nitrides"
8:20 pm - 8:35 pm	Discussion
8:35 pm - 9:15 pm	Hannes Raebiger (Yokohama National University) "Transition Metal Impurities in Semiconductors and Insulators"
9:15 pm - 9:30 pm	Discussion
9:30 pm	<u>Poster Session I</u> (continued)

TUESDAY

7:30 am - 8:30 am	Breakfast
8:30 am	Group Photo
9:00 am - 12:30 pm	Wide Bandgap Nitride for Efficiency
9:00 am - 9:10 am	Discussion Leader: Andrew Armstrong (Sandia National Lab) "Introduction"
9:10 am - 9:40 am	Rachel Oliver (University of Cambridge) "Defects and Their Relation to Doping in GaN"
9:40 am - 9:50 am	Discussion
9:50 am - 10:20 am	Benjamin Hourahine (University of Strathclyde) "SEM Imaging and Theory of Dislocation in III-Nitrides"
10:20 am - 10:30 am	Discussion
10:30 am	Coffee Break
11:00 am - 11:30 am	Volkmar Dierolf (Lehigh University) "Eu Luminescence as a Probe of Mg Acceptors in GaN"
11:30 am - 11:40 am	Discussion
11:40 am - 12:10 pm	Anelia Kakanakova (Linköping University) "Doping Properties of Si and O in AlGa _{1-x} N up to AlN"
12:10 pm - 12:30 pm	Discussion
12:30 pm	Lunch

- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session I
- 6:00 pm Dinner
- 7:30 pm - 9:30 pm **Silicon Carbide for Power**
- Discussion Leader: **Evan Glaser** (Naval Research Lab)
- 7:30 pm - 8:00 pm **Bengt Svensson** (University of Oslo)
"Defects in SiC"
- 8:00 pm - 8:10 pm Discussion
- 8:10 pm - 8:40 pm **Izabela Szlufarska** (University of Wisconsin)
"Energy Barriers for Point Defect Reactions in 3C SiC"
- 8:40 pm - 8:50 pm Discussion
- 8:50 pm - 9:20 pm **Pat Lenahan** (Penn State University)
"Interface Defects in SiO₂/SiC by Spin Resonance"
- 9:20 pm - 9:30 pm Discussion
- 9:30 pm Poster Session I (*continued*)

WEDNESDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Materials for Photovoltaics**
- 9:00 am - 9:20 am Discussion Leader: **Rebecca Jones-Albertus** (U.S. Department of Energy)
"Introduction"
- 9:20 am - 9:50 am **Yanfa Yan** (University of Toledo)
"Fundamental Limits to CdTe Solar Cell Efficiency"
- 9:50 am - 10:00 am Discussion
- 10:00 am Coffee Break
- 10:30 am - 11:00 am **Steve Ringel** (Ohio State University)
"Defects in Solar Cells"
- 11:00 am - 11:10 am Discussion
- 11:10 am - 11:40 am **Minjoo Larry Lee** (Yale University)
"Defects in GeSi and Arsenide/Phosphide"
- 11:40 am - 11:50 am Discussion
- 11:50 am - 12:20 pm **Sven Rogge** (University of New South Wales)
"Single Atom Defects Si"
- 12:20 pm - 12:30 pm Discussion
- 12:30 pm Lunch

1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session II</u>
6:00 pm	Dinner
7:00 pm - 7:30 pm	<u>Business Meeting</u>
	<i>Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair</i>
7:30 pm - 9:30 pm	Graphene and Like Materials
7:30 pm - 7:50 pm	Discussion Leader: Humberto Terrones (Rensselaer) "Introduction"
7:50 pm - 8:25 pm	Mildred Dresselhaus (Massachusetts Institute of Technology) "Defects in Graphene and Related 2D Materials"
8:25 pm - 8:40 pm	Discussion
8:40 pm - 9:15 pm	Ian Sharp (Berkeley Labs) "New Materials and Defects for Energy Harvesting"
9:15 pm - 9:30 pm	Discussion
9:30 pm	<u>Poster Session II</u> (<i>continued</i>)

THURSDAY

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Oxides, Functional, and Semiconducting
9:00 am - 9:30 am	Discussion Leader: Wladek Walukiewicz (Berkeley Labs) "Introduction"
9:30 am - 10:00 am	Darrell Schlom (Cornell University) "Defects in Perovskite Gigahertz Dielectrics"
10:00 am - 10:15 am	Discussion
10:15 am	Coffee Break
10:45 am - 11:15 am	Ed Seebauer (University of Illinois) "Semiconducting Oxide Materials Defect Engineering"
11:15 am - 11:30 am	Discussion
11:30 am - 12:00 pm	Keith McKenna (University of York) "Effect of Grain Boundaries in TiO ₂ on Electron Mobility"
12:00 pm - 12:15 pm	Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session II</u>

6:00 pm	Dinner
7:30 pm - 9:30 pm	Keynote Session
7:30 pm - 7:50 pm	Discussion Leader: Christian Wetzel (Rensselaer) "Introduction"
7:50 pm - 9:00 pm	R.A. Street (PARC) "Defects in Organic Thin Films and Oxide Transistors"
9:00 pm - 9:20 pm	Discussion

FRIDAY

7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Defects in Semiconductors (2014)

Name	Organization	Participation	Status
Agarwal, Anuradha M	Massachusetts Institute of Technology	Poster Presenter	Registered
Akey, Austin J	Massachusetts Institute of Technology	Poster Presenter	Registered
Alkauskas, Audrius	University of California Santa Barbara	Poster Presenter	Registered
Alt, Hans-Chr.	Munich University of Applied Sciences	Poster Presenter	Registered
Armstrong, Andrew	Sandia National Lab	Discussion Leader	Registered
Baker, Brittany B	Texas Tech University	Poster Presenter	Registered
Bebek, Mehmet B	TTU	Poster Presenter	Registered
Bonanni, Alberta	Johannes Kepler Univ	Speaker	Registered
Brandt, Martin	Technische Universität München	Vice Chair	Registered
Bross, Adam S	Rensselaer	Poster Presenter	Registered
Caldas, Marilia J	Instituto de Fisica - Universidade de São Paulo	Poster Presenter	Registered
Campion, Michael J	Massachusetts Institute of Technology	Poster Presenter	Registered
Ciatto, Gianluca	Synchrotron SOLEIL	Poster Presenter	Registered
Colleoni, Davide	EPFL	Poster Presenter	Registered
Corolewski, Caleb D	Washington State University	Attendee	Registered
Cowern, Nicholas E B	Newcastle University	Speaker	Registered
Dan, Yaping	Shanghai Jiao Tong University	Poster Presenter	Registered
Deemer, Michael J	Pennsylvania State University	Attendee	Registered
Dierolf, Volkmar	Lehigh Univ	Speaker	Registered
Dietl, Tomasz	Polish Academy of Science	Discussion Leader	Registered
Dresselhaus, Mildred S	MIT	Speaker	Registered
Drew, Alan J	Queen Mary Univ London	Speaker	Registered
Dreyer, Cyrus E	University of California, Santa Barbara	Poster Presenter	Registered
Durniak, Mark T	Rensselaer Polytechnic Institute	Poster Presenter	Registered
El Kaaouachi, Abdelhamid	University Ibnou Zohr, Faculty of Sciences	Poster Presenter	Registered
Elsaesser, David R	Rensselaer Polytechnic Institute	Poster Presenter	Registered
Ertekin, Elif	University of Illinois	Poster Presenter	Registered
Estreicher, Stefan K	Texas Tech University	Attendee	Registered
Fu, Kai-Mei C	University of Washington	Poster Presenter	Registered
Gerstmann, Uwe	University of Paderborn	Speaker	Registered
Gibbons, Terrance M	Texas Tech University	Poster Presenter	Registered
Glaser, Evan R	Naval Research Laboratory	Discussion Leader	Registered
Hernandez, Natalie L	Lehigh University	Poster Presenter	Registered
Hourahine, Ben	University of Strathclyde	Speaker	Registered
Ivady, Viktor	Wigner Research Centre for Physics	Poster Presenter	Registered
Jamal, Hemine	Faculty of Sciences and Technology	Poster Presenter	Registered
Jaramillo, Rafael	MIT	Poster Presenter	Registered
Jones-Albertus, Rebecca	Department of Energy	Discussion Leader	Registered
Kakanakova, Anelia	Linköping University	Speaker	Registered
Kim, Yong-Sung	Korea Research Institute of Standards and Science	Poster Presenter	Registered
Klimov, Paul V	University of Chicago - IME	Poster Presenter	Registered
Kropman, Daniel	Tallinn University of Technology	Poster Presenter	Registered
Kudrawiec, Robert	Wroclaw University of Technology	Speaker	Registered

Lakshmi, K V	Rensselaer Polytechnic Institute	Speaker	Registered
Lee, Jong-Sook	Chonnam National University	Poster Presenter	Registered
Lee, Minjoo Larry	Yale University	Speaker	Registered
Lenahan, Patrick M	Pennsylvania State University	Speaker	Registered
Li, Yufeng	Xi'an Jiaotong University	Poster Presenter	Registered
Lichti, Roger L	Texas Tech University	Poster Presenter	Registered
Linez, Florence F	Aalto University	Poster Presenter	Registered
Liu, Zhengjun	Aalto University	Poster Presenter	Registered
McCluskey, Matt	Washington State University	Poster Presenter	Registered
McCrary, Duane J	Pennsylvania State University	Poster Presenter	Registered
McKenna, Keith	University of York	Speaker	Registered
Mengyan, Rick W	Texas Tech University	Poster Presenter	Registered
Miceli, Giacomo	Ecole polytechnique fédérale de Lausanne (EPFL)	Poster Presenter	Registered
Monmeyran, Corentin P	Massachusetts Institute of Technology	Poster Presenter	Registered
Mukherjee, Kunal	Massachusetts Institute of Technology	Poster Presenter	Registered
Murphy, John	University of Warwick	Poster Presenter	Registered
Nanishi, Yasushi	Ritsumeikan University	Poster Presenter	Registered
Nukala, Pavan	University of Pennsylvania	Poster Presenter	Registered
Occena, Jordan	University of Michigan	Poster Presenter	Registered
Oliver, Rachel	University of Cambridge	Speaker	Registered
Osayemwenre, Gilbert	Fort Hare Institute of Technology (FHIT)	Poster Presenter	Registered
Patel, Neil	Massachusetts Institute of Technology	Poster Presenter	Registered
Qin, Ying	Lehigh University	Poster Presenter	Registered
Raebiger, Hannes	Yokohama National Univ	Speaker	Registered
Ringel, Steven	Ohio State University	Speaker	Registered
Rogge, Sven	Univ New South Wales	Speaker	Registered
Schlom, Darrell G	Cornell University	Speaker	Registered
Seebauer, Edmund G	University of Illinois	Speaker	Registered
Segercrantz, Natalie	Aalto University	Poster Presenter	Registered
Sharp, Ian D	Joint Center for Artificial Photosynthesis, LBNL	Speaker	Registered
Sheinai, Krishna	Argonne National Laboratory	Speaker	Registered
Stavola, Michael J	Lehigh University	Poster Presenter	Registered
Street, Robert A	Palo Alto Research Center	Speaker	Registered
Svensson, Bengt	University of Oslo	Speaker	Registered
Szlufarska, Izabela	University of Wisconsin-Madison	Speaker	Registered
Terrones, Humberto	Rensselaer polytechnic Institute	Discussion Leader	Registered
Tuomisto, Filip	Aalto University	Poster Presenter	Registered
Uedono, Akira	Division of Applied Physics, University of Tsukuba	Speaker	Registered
Ventura, Cecilia I	Centro Atomico Bariloche (CONICET) - UNRN	Poster Presenter	Registered
Walukiewicz, Wladek	Lawrence Berkeley National Lab	Discussion Leader	Registered
Weber, Joerg	TU Dresden	Discussion Leader	Registered
Wei, Su-Huai	National Renewable Energy Laboratory	Attendee	Registered
Weiser, Philip M	Lehigh University	Poster Presenter	Registered
Wells, Nathan P	The Aerospace Corporation	Poster Presenter	Registered
Wetzel, Christian M	Rensselaer Polytechnic Institute	Chair	Registered

Woon, Wei Yen	National Central University	Poster Presenter	Registered
Xie, Weiyu	Rensselaer Polytechnic Institute	Poster Presenter	Registered
Yamada-Kaneta, Hiroshi	Kyushu Institute of Technology	Attendee	Registered
Yan, Yanfa	University of Toledo	Speaker	Registered
Yin, Weikai	Lehigh University	Poster Presenter	Registered
Yu, Jaehyung	University of Illinois at Urbana Champaign	Attendee	Registered
Yu, Liping	University of Colorado Boulder	Poster Presenter	Registered
Zakutayev, Andriy	National Renewable Energy Laboratory	Poster Presenter	Registered
Zhang, Shengbai	Rensselaer Polytechnic Institute	Attendee	Registered
Zvanut, Mary Ellen	University of Alabama at Birmingham	Poster Presenter	Registered
98 Attendees			

DEFECTS IN SEMICONDUCTORS (GRS)

August 2-3, 2014
Bentley University
Waltham, MA

Chair:
Audrius Alkauskas

Associate Chair:
Mark T. Durniak

The GRS on Defects in Semiconductors, to be held for the first time, is a unique forum for graduate students, post-docs, and other scientists with comparable levels of experience to present and exchange new data and cutting edge ideas in this important field.

The focus of this particular meeting will be defects in wide band-gap semiconductors, nanostructured materials, including novel two-dimensional systems, as well as defects for quantum information processing and metrology applications. The program will include a mentorship session on the transfer of knowledge and technology from academia to industry.

Contributors


SATURDAY

- | | |
|-------------------|--|
| 1:00 pm - 5:00 pm | Arrival and Check-in |
| 3:30 pm - 3:45 pm | Introductory Comments by GRC Site Staff / Welcome by the GRS Conference Chair |
| 3:45 pm - 4:30 pm | Experimental Studies of Defects |
| | Discussion Leader: Rafael Jaramillo (Massachusetts Institute of Technology) |
| 3:45 pm - 4:15 pm | Joerg Weber (TU Dresden) |
| 4:15 pm - 4:30 pm | Discussion |
| 4:30 pm - 6:00 pm | <u>Poster Session I</u> |
| 6:00 pm | Dinner |

7:30 pm - 9:30 pm

Defects in Compound SemiconductorsDiscussion Leader: **Florence Linez** (Aalto University)

7:30 pm - 7:50 pm

Kunal Mukherjee (Massachusetts Institute of Technology)

"Epitaxy and Characterization of Lattice-Mismatched AlInP Heterostructures for Light Emission"

7:50 pm - 8:00 pm

Discussion

8:00 pm - 8:20 pm

Natalie Segercrantz (Aalto University)

"The Effect of the Growth Method on the Defect Concentrations in GaSb"

8:20 pm - 8:30 pm

Discussion

8:30 pm - 8:50 pm

Qi Li (Wake Forest University)

"Defects and Carrier Transport/Recombination in Materials for Scintillation Gamma Spectroscopy"

8:50 pm - 9:00 pm

Discussion

9:00 pm - 9:20 pm

Andriy Zakutayev (National Renewable Energy Laboratory)

"Unusual Cases of Defects in Unconventional Compound Semiconductors"

9:20 pm - 9:30 pm

Discussion

SUNDAY

7:30 am - 8:30 am

Breakfast

9:00 am - 11:00 am

Quantum Information Processing and NanostructuresDiscussion Leader: **Pauli Kehayias** (University of California Berkeley)

9:00 am - 9:20 am

Marcus Doherty (Australian National University)

"The Quantum Age of Diamond"

9:20 am - 9:30 am

Discussion

9:30 am - 9:50 am

Eva Dupont-Ferrier (CNRS)

"Defects in Semiconductors for Quantum Information"

9:50 am - 10:00 am

Discussion

10:00 am - 10:20 am

Adam Bross (Rensselaer Polytechnic Institute)

"Nanopatterned Templates for Low Defect Density LEDs"

10:20 am - 10:30 am

Discussion

10:30 am - 10:50 am

Paul Klimov (University of Chicago)

"Spins in Silicon Carbide for Quantum Technology"

10:50 am - 11:00 am

Discussion

11:00 am - 12:30 pm Poster Session II*Coffee will be served in the poster area from 11:00 am - 11:30 am*

12:30 pm	Lunch
1:30 pm - 2:30 pm	Mentorship Session Discussion Leader: Mark Durniak (Rensselaer Polytechnic Institute)
1:30 pm - 2:10 pm	Leo Schowalter (Crystal IS)
2:10 pm - 2:30 pm	Discussion
2:30 pm - 3:00 pm	<u>Evaluation Period</u> <i>Fill in GRS Evaluation Forms</i>
3:00 pm	Seminar Concludes

Defects in Semiconductors (GRS) (2014)

Name	Organization	Participation	Status
Alkauskas, Audrius	University of California Santa Barbara	Chair	Registered
Bross, Adam S	Rensselaer	Speaker	Registered
Campion, Michael J	Massachusetts Institute of Technology	Poster Presenter	Registered
Corolewski, Caleb D	Washington State University	Poster Presenter	Registered
Diallo, Ibrahima C	Virginia Commonwealth University	Poster Presenter	Registered
Doherty, Marcus W	Australian National University	Speaker	Registered
Dreyer, Cyrus E	University of California, Santa Barbara	Poster Presenter	Registered
Dupont-Ferrier, Eva	CNRS	Speaker	Registered
Durniak, Mark T	Rensselaer Polytechnic Institute	Chair	Registered
Elsaesser, David R	Rensselaer Polytechnic Institute	Poster Presenter	Registered
Ivady, Viktor	Wigner Research Centre for Physics	Poster Presenter	Registered
Jaramillo, Rafael	MIT	Discussion Leader	Registered
Kehayias, Pauli	UC Berkeley Physics Dept	Discussion Leader	Registered
Klimov, Paul V	University of Chicago - IME	Speaker	Registered
Kropman, Daniel	Tallinn University of Technology	Poster Presenter	Registered
Li, Qi	Wake Forest University	Speaker	Registered
Linez, Florence F	Aalto University	Discussion Leader	Registered
Londero, Elisa	Wigner Research Centre for Physics	Poster Presenter	Registered
McNamara, Joy D	Virginia Commonwealth University	Poster Presenter	Registered
Monmeyran, Corentin P	Massachusetts Institute of Technology	Poster Presenter	Registered
Mukherjee, Kunal	Massachusetts Institute of Technology	Speaker	Registered
Nukala, Pavan	University of Pennsylvania	Poster Presenter	Registered
Occena, Jordan	University of Michigan	Poster Presenter	Registered
Patel, Neil	Massachusetts Institute of Technology	Poster Presenter	Registered
Schwalter, Leo J	Crystal IS	Speaker	Registered
Segercrantz, Natalie	Aalto University	Speaker	Registered
Tuomisto, Filip	Aalto University	Poster Presenter	Registered
Uedono, Akira	Division of Applied Physics, University of Tsukuba	Poster Presenter	Registered
Weber, Joerg	TU Dresden	Speaker	Registered
Wells, Nathan P	The Aerospace Corporation	Poster Presenter	Registered
Xie, Weiyu	Rensselaer Polytechnic Institute	Poster Presenter	Registered
Zakutayev, Andriy	National Renewable Energy Laboratory	Speaker	Registered

32 Attendees