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GORDON RESEARCH CONFERENCES *frontiers of science*

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Nancy Ryan Gray, Ph.D.

Director

**2013 GORDON RESEARCH CONFERENCE
on MOLECULAR ENERGY TRANSFER**

FINAL PROGRESS REPORT

DEPARTMENT OF ENERGY
GRANT NO. DE-SC0009392

The Gordon Research Conference on Molecular Energy Transfer at the Ventura Beach Marriott, Ventura, California, January 13 - 18, 2013. The Conference was well-attended with 64 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 64 attendees, 32 voluntarily responded to a general inquiry regarding ethnicity which appears on our registration forms. Of the 32 respondents, 9% were Minorities – 0% Hispanic, 9% Asian and 0% African American. Approximately 22% of the participants at the 2013 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In designing the formal speakers program, emphasis was placed on current unpublished research and discussion of the future target areas in this field.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 As you know, in the interest of promoting the presentation of unpublished and frontier-breaking research, Gordon Research Conferences does not permit publication of meeting proceedings.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,
Scott Reid, MARQUETTE UNIVERSITY, GRC Chairperson

Molecular Energy Transfer
January 13-18, 2013
Ventura Beach Marriott
Ventura, CA

Chair: Scott A. Reid
Vice Chair: David Sherrill

The 2013 Molecular Energy Transfer (MET) Gordon Conference will bring together scientists in a wide variety of areas of chemistry, chemical biology, and physics, unified by the goal of understanding energy flow and transport within and between molecules, which is essential to the development of a fundamental understanding of the nature of all chemical processes. The deepest understanding can be achieved when phenomena are studied at the molecular level, and modern methods of experimentation are connected to *ab initio* theory. An important aspect of the field is that nearly every forefront topic of inquiry is well-represented by both experimental and theoretical advances. Topics of interest are remarkably diverse, as the emphasis on deriving fundamental understanding often leads to insights in real-world phenomena or even to the development of novel technologies.

In keeping with the tradition of this meeting, which alternates between the MET Gordon Conference in the US and the COMET meeting in Europe, sessions will cover all areas of molecular energy transfer, with 10 sessions of talks and poster sessions covering the areas of :

- Energy Transfer in Inelastic and Reactive Scattering
- Energy Transfer in Photoinitiated and Unimolecular Reactions
- Non-adiabatic Effects in Energy Transfer
- Energy Transfer at Surfaces and Interfaces
- Energy Transfer in Clusters, Droplets, and Aerosols
- Energy Transfer in Solution and Solid
- Energy Transfer in Complex Systems
- Energy Transfer: New vistas and horizons
- Molecular Energy Transfer: Where Have We Been and Where are We Going?

For more information, contact the Chair ([Scott Reid](#)) or Vice-Chair ([David Sherrill](#)).

Contributors



SUNDAY

- 4:00 pm - 8:00 pm Arrival and Check-in (Office Closed 6:00 pm - 7:45 pm)
- 6:00 pm Dinner
- 7:30 pm - 7:40 pm Welcome / Introductory Comments by GRC Site Staff
- 7:40 pm - 9:10 pm **Energy Transfer in Complex Systems**
- 7:40 pm - 7:50 pm Discussion Leader: **Christine Aiken** (Kansas State University)
- 7:50 pm - 8:20 pm **John Herbert** (Ohio State University)
"Fragmentation methods for high accuracy *ab initio* calculations in large clusters and macromolecules"
- 8:20 pm - 8:30 pm Discussion
- 8:30 pm - 9:00 pm **Timothy Schmidt** (University of Sydney)
"Photon management through molecular energy transfer"
- 9:00 pm - 9:10 pm Discussion

MONDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Nonadiabatic Effects in Energy Transfer**
- 9:00 am - 9:10 am Discussion Leader: **Richard Dawes** (Missouri University of Science and Technology)
- 9:10 am - 9:40 am **Millard Alexander** (University of Maryland)
"Collisional electronic quenching of OH"
- 9:40 am - 9:50 am Discussion
- 9:50 am - 10:20 am **Jingsong Zhang** (University of California-Riverside)
"Nonadiabatic dynamics in photodissociation of open-shell species"
- 10:20 am - 10:30 am Discussion
- 10:30 am - 11:10 am Group Photo / Coffee Break
- 11:10 am - 11:40 am **Spiridoula Matsika** (Temple University)
"Exploring non adiabatic events with strong field molecular ionization"

- 11:40 am - 11:50 am Discussion
- 11:50 am - 12:20 pm **Helen Fielding** (University College London)
"Ultrafast non-radiative decay dynamics: from very small molecules to the GFP chromophore"
- 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 Poster Session I
- 6:00 pm Dinner
- 7:30 pm - 9:30 pm **Energy Transfer at Surfaces and Interfaces**
- 7:30 pm - 7:40 pm Discussion Leader: **David Nesbitt** (University of Colorado and JILA)
- 7:40 pm - 8:10 pm **Rainer Beck** (Ecole Polytechnique Fédérale de Lausanne)
"Mode- and bond-selective chemisorption of methane on Pt(111)"
- 8:10 pm - 8:20 pm Discussion
- 8:20 pm - 8:50 pm **Gil Nathanson** (University of Wisconsin-Madison)
"Non-Maxwellian Helium Evaporation from Protic and Hydrocarbon Liquids"
- 8:50 pm - 9:00 pm Discussion
- 9:00 pm - 9:20 pm Hot Topic: **Kai Golibrzuch** (Georg-August University)
"State-to-state time-of-flight experiments of NO scattering from Au(111): Mapping translational energy in vibrational-rotational inelastic gas-surface collisions using IR-UV double resonance"
- 9:20 pm - 9:30 pm Discussion

TUESDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Energy Transfer in Inelastic and Reactive Scattering**
- 9:00 am - 9:10 am Discussion Leader: **Xueming Yang** (Dalian)
- 9:10 am - 9:40 am **Floyd Davis** (Cornell University)
"Dynamics of Polyatomic Free Radical Reactions"
- 9:40 am - 9:50 am Discussion
- 9:50 am - 10:20 am **Arthur Utz** (Tufts University)
"Vibrational Energy Flow and Chemical Reactivity at the Gas-Surface Interface"
- 10:20 am - 10:30 am Discussion
- 10:30 am - 11:00 am Coffee Break
- 11:00 am - 11:30 am **Piero Casavecchia** (University of Perugia)
"Molecular beam studies of multichannel nonadiabatic reactions: $O(^3P) +$ unsaturated hydrocarbons"

- 11:30 am - 11:40 am Discussion
- 11:40 am - 12:10 pm **Ralf Kaiser** (University of Hawaii-Manoa)
"Mechanistical Studies on the Formation of PAHs - From the Interstellar Medium to Combustion Flames"
- 12:10 pm - 12:20 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 **Energy Transfer: New Vistas and Horizons**
- 7:30 pm - 7:40 pm Discussion Leader: **Robert Field** (Massachusetts Institute of Technology)
- 7:40 pm - 8:10 pm **Brooks Pate** (University of Virginia)
"Probing Vibrational Energy Transfer in Isomerization Reactions with Dynamic Rotational Spectroscopy"
- 8:10 pm - 8:20 pm Discussion
- 8:20 pm - 8:50 pm **Anna Krylov** (University of Southern California)
"Understanding electron-donating ability of green fluorescent protein: Electronic structure perspective"
- 8:50 pm - 9:00 pm Discussion
- 9:00 pm - 9:20 pm Hot Topic: **Adam Chatterley** (Warwick)
"Time resolved photoelectron imaging of gas-phase nucleotides"
- 9:20 pm - 9:30 pm Discussion

WEDNESDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Energy Transfer in Solution and Solid**
- 9:00 am - 9:10 am Discussion Leader: **Yuan-Pern Lee** (National Chiao Tung University, Taiwan)
- 9:10 am - 9:40 am **Andrew Orr-Ewing** (University of Bristol)
"Vibrationally resolved dynamics and energy flow for reactions in solution"
- 9:40 am - 9:50 am Discussion
- 9:50 am - 10:20 am **Ara Apkarian** (University of California-Irvine)
"Wigner hole and Quantum coherent vibronic dynamics in Condensed phase"
- 10:20 am - 10:30 am Discussion
- 10:30 am - 11:10 am Coffee Break
- 11:10 am - 11:30 am Hot Topic: **Dmitri Babikov** (Marquette University)
"Mixed quantum/classical theory of collisional energy transfer"

- 11:30 am - 11:40 am Discussion
- 11:40 am - 12:00 pm Hot Topic: **Patrick El-Khoury** (Pacific Northwest National Laboratory)
"Raman Scattering of Perturbed Molecular Systems"
- 12:00 pm - 12:10 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session II
- 6:00 pm Dinner
- 7:00 pm - 7:30 pm Business Meeting
Nominations for the next Vice Chair; Fill out Conference Evaluation Forms; Discuss future Site & Scheduling preferences; Election of the next Vice Chair
- 7:30 pm - 9:30 pm **Energy Transfer in Photoinitiated and Unimolecular Reactions**
- 7:30 pm - 7:40 pm Discussion Leader: **Scott Kable** (University of Sydney)
- 7:40 pm - 8:10 pm **Arthur Suits** (Wayne State University)
"New probes of photochemistry and reaction dynamics"
- 8:10 pm - 8:20 pm Discussion
- 8:20 pm - 8:50 pm **Ingo Fischer** (University of Wuerzburg)
"Unimolecular dynamics of open-shell molecules"
- 8:50 pm - 9:00 pm Discussion
- 9:00 pm - 9:20 pm Hot topic: **Christopher Elles** (Kansas)
"Electronic and vibrational energy flow in photochromic molecular switches"
- 9:20 pm - 9:30 pm Discussion

THURSDAY

- 7:30 am - 8:30 am Breakfast
- 9:00 am - 12:30 pm **Energy Transfer in Clusters, Droplets, and Aerosols**
- 9:00 am - 9:10 am Discussion Leader: **Richard Mabbs** (Washington University)
- 9:10 am - 9:40 am **Hanna Reisler** (University of Southern California)
"Vibrational predissociation dynamics of hydrogen-bonded clusters"
- 9:40 am - 9:50 am Discussion
- 9:50 am - 10:20 am **Mark Johnson** (Yale University)
"Livin' Large: Temperature control and tagging spectroscopy of complex molecules and reaction intermediates"
- 10:20 am - 10:30 am Discussion
- 10:30 am - 11:00 am Coffee Break

- 11:00 am - 11:30 am **Ruth Signorell** (University of British Columbia)
"Interaction of Light with Ultrafine Aerosol Particles"
- 11:30 am - 11:40 am Discussion
- 11:40 am - 12:00 pm Hot Topic: **Richard Loomis** (Washington University)
"Interrogation of the competing relaxation pathways involved in the dissociation of excited-state rare gas-dihalogen complexes"
- 12:00 pm - 12:10 pm Discussion
- 12:30 pm Lunch
- 1:30 pm - 4:00 pm Free Time
- 4:00 pm - 6:00 pm Poster Session II
- 6:00 pm Dinner
- 7:30 pm - 9:30 pm **Molecular Energy Transfer: Where Have We Been and Where Are We Going?**
- 7:30 pm - 7:40 pm Discussion Leader: **Marsha Lester** (University of Pennsylvania)
- 7:40 pm - 8:10 pm **Tom Rizzo** (Ecole Polytechnique Fédérale de Lausanne)
"Spectroscopy and excited-state dynamics of cold, gas-phase peptides and proteins"
- 8:10 pm - 8:20 pm Discussion
- 8:20 pm - 8:50 pm **Maurice H. M. Janssen** (VU University)
"Probing chirality with a femtosecond reaction microscope"
- 8:50 pm - 9:00 pm Discussion

FRIDAY

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

Email History

Molecular Energy Transfer (2013)

Name	Organization	Participation	Status
AIKENS, CHRISTINE M	KANSAS STATE UNIVERSITY	Discussion Leader	Registered
ALBERT, DANIEL R	CORNELL UNIVERSITY	Poster Presenter	Registered
ALEXANDER, MILLARD H	UNIVERSITY OF MARYLAND	Speaker	Registered
APKARIAN, ARA	UNIVERSITY OF CALIFORNIA, IRVINE	Speaker	Registered
BABIKOV, DMITRI	MARQUETTE UNIVERSITY	Poster Presenter	Registered
BECK, RAINER D	ECOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE	Speaker	Registered
BRAVAYA, KSENIA B	UNIVERSITY OF SOUTHERN CALIFORNIA	Speaker	Registered
CARICATO, MARCO	GAUSSIAN, INC.	Poster Presenter	Registered
CASAVECCHIA, PIERGIORGIO	UNIVERSITA DI PERUGIA	Speaker	Registered
CHAMBREAU, STEVE	ERC, INC.	Poster Presenter	Registered
CHAO, SHENG-DER	NATIONAL TAIWAN UNIVERSITY	Poster Presenter	Registered
CHATTERLEY, ADAM S	WARWICK UNIVERSITY	Poster Presenter	Registered
CHNG, LEE C	UNIVERSITY OF SOUTHERN CALIFORNIA	Poster Presenter	Registered
DAO, DIEP B	WASHINGTON UNIVERSITY IN ST.LOUIS	Poster Presenter	Registered
DAVIS, FLOYD	CORNELL UNIVERSITY	Speaker	Registered
DAWES, RICHARD	MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY	Discussion Leader	Registered
DUBERNET, MARIE LISE	LPMAA, UNIVERSITE PIERRE ET MARIE CURIE	Poster Presenter	Registered
EL-KHOURY, PATRICK Z.	PACIFIC NORTHWEST NATIONAL LABORATORY	Poster Presenter	Registered
ELLES, CHRISTOPHER G	UNIVERSITY OF KANSAS	Poster Presenter	Registered
FIELD, ROBERT W	MIT	Discussion Leader	Registered
FIELDING, HELEN	UNIVERSITY COLLEGE, LONDON	Speaker	Registered
FISCHER, INGO	UNIVERSITY OF WUERZBURG	Speaker	Registered
GASTON, NICOLA	SCHOOL OF CHEMICAL AND PHYSICAL SCIENCES	Poster Presenter	Registered
GOLIBRZUCH, KAI	GEORG-AUGUST UNIVERSITY GOETTINGEN	Poster Presenter	Registered
HERBERT, JOHN M	OHIO STATE UNIVERSITY	Speaker	Registered
JANSSEN, MAURICE H	VU UNIVERSITY	Speaker	Registered
JANSSEN, LIESBETH MC	COLUMBIA UNIVERSITY	Poster Presenter	Registered
JOHNSON, MARK A	YALE UNIVERSITY	Speaker	Registered
KABLE, SCOTT	UNIVERSITY OF SYDNEY	Discussion Leader	Registered
KAISER, RALF	UNIVERSITY OF HAWAII - MANOA	Speaker	Registered
KHUSEYNOV, DMITRY	UNIVERSITY OF ARIZONA	Poster Presenter	Registered
KOCISEK, JAROSLAV	ACADEMY OF SCIENCES OF THE CZECH REPUBLIC	Poster Presenter	Registered
KRYLOV, ANNA I	UNIVERSITY OF SOUTHERN CALIFORNIA	Speaker	Registered
LAO, KA UN	THE OHIO STATE UNIVERSITY	Poster Presenter	Registered

LEE, YUAN-PERN	NATIONAL CHIAO TUNG UNIVERSITY	Discussion Leader	Registered
LESTER, MARSHA I	UNIVERSITY OF PENNSYLVANIA	Discussion Leader	Registered
LOOMIS, RICHARD A	WASHINGTON UNIVERSITY IN SAINT LOUIS	Poster Presenter	Registered
LU, YU-JU	UNIVERSITY OF COLORADO AT BOULDER	Poster Presenter	Registered
LUCAS, MICHAEL	UNIVERSITY OF CALIFORNIA, RIVERSIDE	Poster Presenter	Registered
MABBS, RICHARD	WASHINGTON UNIVERSITY	Discussion Leader	Registered
MARINAKIS, SARANTOS	OXFORD UNIVERSITY	Poster Presenter	Registered
MATSIKA, SPIRIDOULA	TEMPLE UNIVERSITY	Speaker	Registered
NATHANSON, GILBERT M	UNIVERSITY OF WISCONSIN-MADISON	Speaker	Registered
NESBITT, DAVID J	UNIVERSITY OF COLORADO AT BOULDER	Discussion Leader	Registered
NGUYEN, THANH LAM	THE UNIVERSITY OF TEXAS AT AUSTIN	Poster Presenter	Registered
ORR-EWING, ANDREW	UNIVERSITY OF BRISTOL	Speaker	Registered
PEIN, BRANDT C	UNIVERSITY OF ILLINOIS	Poster Presenter	Registered
PETROVIC, VLADIMIR S	STANFORD UNIVERSITY	Poster Presenter	Registered
REID, SCOTT A	MARQUETTE UNIVERSITY	Chair	Registered
REISLER, HANNA	UNIVERSITY OF SOUTHERN CALIFORNIA	Speaker	Registered
RIZZO, THOMAS R	ECOLE POLYTECHNIQUE FEDERALE LAUSANNE	Speaker	Registered
RODRIGO, CHIRANTHA P	UNIVERSITY OF SOUTHERN CALIFORNIA	Poster Presenter	Registered
SCHMIDT, TIMOTHY W	UNIVERSITY OF SYDNEY	Speaker	Registered
SHARPLES, THOMAS R	HERIOT WATT UNIVERISTY	Poster Presenter	Registered
SHERRILL, DAVID	GEORGIA TECH	Vice Chair	Registered
SIGNORELL, RUTH	ETH ZURICH	Speaker	Registered
STEILL, JEFFREY D.	SANDIA NATIONAL LABS	Poster Presenter	Registered
SUITS, ARTHUR G	WAYNE STATE UNIVERSITY	Speaker	Registered
TODT, MICHAEL A	CORNELL UNIVERSITY	Poster Presenter	Registered
UTZ, ARTHUR L	TUFTS UNIVERSITY	Speaker	Registered
WIENS, JUSTIN P	UNIVERSITY OF WISCONSIN-MADISON	Poster Presenter	Registered
Wong, Diane	QUANTEL LASERS NORTH AMERICA	Attendee	Registered
YANG, XUEMING	DALIAN INSTITUTE OF CHEMISTRY PHYSICS	Discussion Leader	Registered
ZHANG, JINGSONG	UNIVERSITY OF CALIFORNIA	Speaker	Registered

64 Attendees

PATENT CERTIFICATION

Gordon Research Conferences
Awardee

Interim Certification

DE-SC0009392 (2013 Molecular Energy Transfer)
DOE Prime and/or Subcontract Nos.

Final Certification

Awardee hereby certifies unless indicated to the contrary, that:

1. All procedures for identifying and disclosing subject inventions as required by the patent clause of the contract have been followed throughout the reporting period.
2. There were no subcontracts or purchase orders involving research, development, and demonstration except as follows: (a separate certification must be provided to DOE for each subcontract or purchase order awarded.)
3. No inventions or discoveries were made or conceived in the course of or under this contract other than the following (Certification includes , does not include all subcontracts):

<u>TITLE</u>	<u>INVENTOR</u>	<u>DATE REPORTED</u>	<u>DOE "S" NO.*</u>
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n/a

4. The completion date of this contract is as follows:
5. The following period is covered by this certification:

<u>November</u>	<u>15,</u>	<u>2012</u>	to	<u>November</u>	<u>14,</u>	<u>2013</u>
Month	Day	Year		Month	Day	Year



Gordon Research Conferences
Contractor

Signature

Nancy Ryan Gray

Director and President
Title

512 Liberty Lane, West Kingston, RI 02892
Address

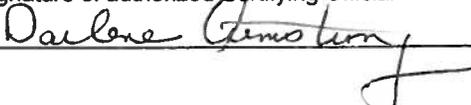
3/14/2013

Date of Certification

* Also include Subcontract No. if available.

NOTE: A positive certification for this Item 3 does not negate the requirement for furnishing to DOE a fully executed Patent Certification from each subawardee identified in Item 2.

**TANGIBLE PERSONAL PROPERTY REPORT
SF- 428**

		Page 1	of 1 Pages
1. Federal Agency and Organization Element to Which Report is Submitted DOE	2. Federal Grant or Other Identifying Number Assigned by Federal Agency DE-SC0009392	3a. DUNS 07-571-2877	3b. EIN 26-0150662
4. Recipient Organization (Name and complete address including zip code) GORDON RESEARCH CONFERENCES 512 LIBERTY LANE WEST KINGSTON, RI 02892-1502		5. Recipient Account or Identifying Number 2013 MOLECULAR ENERGY TRANSFER	
6. Attachment (Check applicable) <input type="checkbox"/> Annual Report (SF-428-A) <input checked="" type="checkbox"/> Final (Award Closeout) Report (SF-428-B) <input type="checkbox"/> Disposition Report/Request (SF-428-C)		7. Supplemental Sheet <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
8. Comments NO PROPERTY			
9a. Typed or Printed Name and Title of Authorized Certifying Official DARLENE ARMSTRONG CONFERENCE OPERATIONS & GRANTS MNGR		9c. Telephone (area code, number, extension) 401-360-1505	
		9d. Email address GRANTS@GRC.ORG	
9b. Signature of authorized Certifying Official 		9e. Date report submitted (Month, Day, Year)	
		10. Agency use only	

FEDERAL FINANCIAL REPORT

(Follow form instructions)

1. Federal Agency and Organizational Element to Which Report is Submitted DOE	2. Federal Grant or Other Identifying Number Assigned by Federal Agency (To report multiple grants, use FFR Attachment) DE-SC0009392	Page 1	of 1 pages
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3. Recipient Organization (Name and complete address including Zip code)
 Gordon Research Conferences, 512 Liberty Lane, West Kingston, RI 02892

4a. DUNS Number 07-571-2877	4b. EIN 26-0150662	5. Recipient Account Number or Identifying Number (To report multiple grants, use FFR Attachment) 2013 Molecular Energy Transfer	6. Report Type <input type="checkbox"/> Quarterly <input type="checkbox"/> Semi-Annual <input type="checkbox"/> Annual <input checked="" type="checkbox"/> Final	7. Basis of Accounting <input checked="" type="checkbox"/> Cash <input type="checkbox"/> Accrual
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8. Project/Grant Period From: (Month, Day, Year) 11/15/2012	To: (Month, Day, Year) 11/14/2013	9. Reporting Period End Date (Month, Day, Year) 01/18/2013
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10. Transactions Cumulative

(Use lines a-c for single or multiple grant reporting)

Federal Cash (To report multiple grants, also use FFR Attachment):	
a. Cash Receipts	7,500
b. Cash Disbursements	7,500
c. Cash on Hand (line a minus b)	0

(Use lines d-o for single grant reporting)

Federal Expenditures and Unobligated Balance:	
d. Total Federal funds authorized	7,500
e. Federal share of expenditures	7,500
f. Federal share of unliquidated obligations	0
g. Total Federal share (sum of lines e and f)	7,500
h. Unobligated balance of Federal funds (line d minus g)	0

Recipient Share:	
i. Total recipient share required	
j. Recipient share of expenditures	
k. Remaining recipient share to be provided (line i minus j)	

Program Income:	
l. Total Federal program income earned	
m. Program income expended in accordance with the deduction alternative	
n. Program income expended in accordance with the addition alternative	
o. Unexpended program income (line l minus line m or line n)	

	a. Type	b. Rate	c. Period From	Period To	d. Base	e. Amount Charged	f. Federal Share
11. Indirect Expense	N/A	N/A	N/A	N/A	N/A	N/A	N/A
g. Totals:					N/A	N/A	N/A

12. Remarks: Attach any explanations deemed necessary or information required by Federal sponsoring agency in compliance with governing legislation:

13. Certification: By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and intent set forth in the award documents. I am aware that any false, fictitious, or fraudulent information may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 18, Section 1001)

a. Typed or Printed Name and Title of Authorized Certifying Official Darlene Armstrong, Conference Operations & Grants Manager	c. Telephone (Area code, number and extension) 401-360-1505
b. Signature of Authorized Certifying Official 	d. Email address grants@grc.org
e. Date Report Submitted (Month, Day, Year)	
14. Agency use only:	

Standard Form 425 - Revised 6/28/2010
 OMB Approval Number: 0348-0061
 Expiration Date: 10/31/2011

Paperwork Burden Statement
 According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is 0348-0061. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0061), Washington DC 20503.