

<b>Reported by (Name):</b>	<b>Wesley Culberson</b>
<b>Organization:</b>	<b>University of Wisconsin – Madison</b>
<b>Position Title:</b>	<b>Assistant Professor</b>
<b>Activity:</b>	<b>CIRMS liason</b>
<b>Meeting Dates:</b>	<b>April 27-29, 2015</b>
<b>Meeting Location:</b>	<b>NIST, Gaithersburg, MD</b>
<b>Payment \$:</b>	<b>(see below)</b>
<b>Reasons for Attending or not Attending</b>	<b>See attached</b>
<b>Issues from Previous Meetings or Year:</b>	<b>See attached</b>
<b>General Description of Activities of the Organization and/or Meeting:</b>	<b>See attached</b>
<b>Issues for AAPM:</b>	<b>See attached</b>
<b>Budget Request (\$):</b>	<b>Reimbursement request of \$1,561.18 submitted on 4/30/15</b>



## MEDICAL RADIATION RESEARCH CENTER

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April 30, 2015

Viv Dennis  
Administrative Assistant  
AAPM Headquarters  
One Physics Ellipse  
College Park, MD 20740-3846

Dear Viv,

Enclosed are my expenses for the trip to the CIRMS meeting as AAPM liaison. As liaisons and co-chairs, Regina Fulkerson and I are responsible for arranging the Medical breakout session at the CIRMS meeting representing AAPM interests. This is generally a meeting with international flavor, so in addition to the AAPM interests, the meeting covers what is occurring around the world in the ionizing radiation community. The program and breakout sessions are attached with our summary of the meeting. Would you please pass this along to President Boone and others that may be interested.

My expenses are enclosed; Regina Fulkerson will send his in under separate cover. Please make check payable to myself and mail it to the address above. If there are any questions, please contact me.

Sincerely,

Wesley Culberson, PhD, DABR  
Assistant Professor and Research Director  
(AAPM Liaison to CIRMS)

Report to John Boone, PhD, FAAPM. President and the AAPM  
Regarding the Council on Ionizing Radiation Measurements and Standards (CIRMS)

By

Wesley Culberson, PhD, DABR  
Regina K Fulkerson, PhD  
AAPM liaisons to CIRMS

The Council on Ionizing Radiation Measurements and Standards (CIRMS) is organized for educational and scientific purposes to analyze the current and future needs of ionizing radiation measurements and standards. This includes the disciplines of medical applications, industrial applications, food irradiation, and societal benefits of radiation, including homeland security. CIRMS has a broad-based membership from industry, state, and federal government and academia. The main objectives of CIRMS are the advancement and dissemination of the physical measurements and standards needed for applications of ionizing radiations. CIRMS has played an important role for the discussion of radiation measurements and standards issues. CIRMS provides a platform for experts from various background, allowing them to convey and share ideas thereby enhancing the field through. Further, a single detailed needs report is compiled with information from each discipline and sent to the legislative body with the intent of gaining financial and political awareness of the needs in our field. For more information, see: [www.cirms.org](http://www.cirms.org).

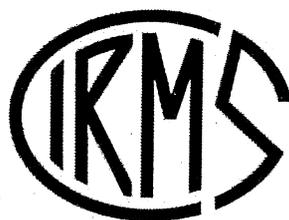
As liaisons to CIRMS for the AAPM and co- chairs of the medical subcommittee, we are responsible for arranging the medical breakout session and providing medical plenary speakers at the CIRMS meeting. This was the first year that Regina and I were liaisons and we have been working with our former liaisons, Geoff Ibbott and Larry DeWerd. CIRMS is generally a meeting with international flavor, so in addition to the AAPM interests, the meeting covers what is occurring around the world.

The CIRMS annual meeting was held on the National Institute for Standards and Technology (NIST) campus in Gaithersburg, MD for three days on April 27-29, 2015. The theme of the meeting was “Fundamentals of Ionizing Radiation.” The program is attached. The plenary sessions included presentations on medical applications, and societal benefits of radiation. Breakout sessions were on Monday, Tuesday and Wednesday for each of the subcommittees, which include Medical Applications, Radiation Protection, and Industrial Applications and Materials Effects. The medical plenary talks covered topics including: The need for standardization in radiobiology, brachytherapy physics and national standards, fundamental measurements of stopping powers, MRI-based accelerator dosimetry, and primary measurements of absorbed dose to water with calorimeters.

Many of the attendees to CIRMS from the field of medical physics are also active members of the AAPM with leadership roles in various subcommittees. The joint interests of CIRMS and the AAPM are enhanced at the annual meeting of CIRMS, allowing for a discussion among the experts of the fundamental origin of any measured

value in the clinical setting. As the field of medical physics is rapidly evolving, CIRMS is committed to providing a forum to establish the needs of standardization for any new device or radiotherapy device that comes to market in order to provide safe and effective treatments. This was very apparent in our discussions at the CIRMS annual meeting as two of our breakout talks concerned new devices that are still undergoing refinements in the dosimetry of them. As AAPM liaisons, we strive to bring awareness to the needs of accurate dosimetry through the activities of CIRMS to the AAPM members. The Medical Subcommittee agenda is attached. Please let us know if you would like to discuss any items further or have any questions about our experiences.

Respectfully submitted by  
Wesley Culberson  
Regina Fulkerson



**Council on Ionizing Radiation Measurements and Standards  
23rd Annual Meeting, 2015**

**“FUNDAMENTALS OF IONIZING RADIATION”**

**April 27 – 29, 2015**

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**PLENARY AGENDA**

Monday, April 27

- 8:30 am Continental Breakfast/Registration
- 9:00 am **President's Welcome**  
Dr. Kim M. Morehouse, President, CIRMS
- 9:15 am **Welcome to NIST**  
Dr. Lisa R. Karam, Chief  
Radiation Physics Division, Physical Measurement Laboratory  
National Institute of Standards and Technology, MD
- 9:30 am **Intro to NEEDS REPORT**  
Dr. Walter E. Voit, CIRMS 1st Vice President  
University of Texas at Dallas
- 9:45 am **Keynote Address**  
Dr. Robert C. Baumann, Texas Instruments, TX  
*"Silicon Amnesia and Dementia: Radiation Effects in Microelectronics"*
- 10:15 am **Discussion**
- 10:30 am Coffee Break
- 10:45 am **Plenary Session I**  
Kevin O'Hara, Sterigenics, USA  
*"The Fundamentals of Ionizing Radiation as Applied to Radiation Processing"*

11:15 am

**Student Travel Grant Awards Presentations:**

CIRMS Student Travel Grant – sponsored by ASTM International

Mitchell Carroll, UT MD Anderson Cancer Center  
*"Investigation of PRESAGE as a 3D Dosimetric Tool for Proton Therapy by Measurement of Proton-activated Positron Emission"*

CIRMS Student Travel Grant – sponsored by Hopewell Designs Inc.

Jon Hansen, University of Wisconsin - Madison  
*"Capacitance Methods to Determine Electrode Area and Air Gap for Windowless Planar Extrapolation Chamber"*

CIRMS Student Travel Grant – sponsored by IBA Industrial

Travis Dietz, University of Maryland College Park  
*"Improvement of Radiation Grafting of Selective Ligands onto Polymeric Substrates to Produce High-capacity Adsorbents for Harvesting Uranium from Seawater"*

CIRMS Student Travel Grant – sponsored by Radiation Physics Division of NIST

Sameer Taneja, University of Wisconsin - Madison  
*"A Monte-Carlo Based Spectroscopic Characterization of a Cs-137 Irradiator with Attenuating Material"*

11:45 am

**Poster Summaries**

12:00 pm

**Poster Viewing**

12:45 pm

Lunch

1:45 pm

**Concurrent Working Group Sessions: IAME, Medical App, RP/HS  
Working Group Session I**

3:30 pm

Coffee Break

3:45 pm

**Working Group Session II**

5:30 pm

Adjourn

Tuesday, April 28

8:30 am

Continental Breakfast

9:15 am

**President's Welcome**

Dr. Kim M. Morehouse, President, CIRMS

9:30 am

**Plenary Session II**

Dr. Michael S. Gordon, IBM T.J. Watson Research Center, NY  
*"Challenges in Ultra-low Emissivity Alpha Particle Detection"*

10:00 am

**Randall S. Caswell Award for Distinguished Achievement in the Field of Ionizing Radiation Measurements and Standards presented to:  
X. George Xu, PhD Rensselaer Polytechnic Institute**

10:30 am

Coffee Break

- 10:45 am     **Plenary Session III**  
Dr. Frédéric Tessier, National Research Council, Canada  
*"Resolving the Anomalous Behavior of the NE2575 Ionization Chamber with EGSnrc Simulations"*
- 11:15 am     **Poster Summaries**
- 11:30 am     **Poster Viewing**  
12:45 pm     Lunch
- 1:45 pm     **Concurrent Working Group Sessions (continued): IAME, RP/HS**  
**Working Group Session III**  
3:30 pm     Coffee Break
- 3:45 pm     **Working Group Sessions IV**  
5:30 pm     Adjourn Day 2
- 6:15 pm     Bus from Hilton Hotel to Smokey Glen Farm
- 6:30 pm     Barbecue Dinner at Smokey Glen Farms

Wednesday, April 29

- 8:30 am     Continental Breakfast
- 9:15 am     **Welcome Back**  
Dr. Kim M. Morehouse, President, CIRMS
- 9:30 am     **Plenary Session IV**  
Dr. Firas Mourtada, Christiana Care's Helen F. Graham Cancer Center & Research Institute, DE  
*"Recent Advances in Brachytherapy Dose Calculations Methods—  
The Need for Standardization is Now More than Ever"*
- 10:00 am    **Plenary Session V**  
Dr. Daniel A. Hahn, University of Florida, FL  
*"Developing Biomarkers of Irradiation of Insects to Facilitate International Trade in  
Agricultural Commodities"*
- 10:30 am    Coffee Break
- 10:45 am    **Closing Address**  
Paul Wynne, International Irradiation Association, United Kingdom  
*"Irradiation in a Changing World"*
- 11:15 am    **Report on Needs in Ionizing Radiation**
- 12:30 pm    **Closing Remarks/New Officers**  
12:45 pm    Lunch
- 2:30 pm     **ExComm Meeting**  
3:30 pm     Adjourn

## **AFTERNOON AGENDA: Monday April 27, 2015**

Medical Applications Working Group

Chairs: Regina Fulkerson, Wes Culberson and Ronnie Minniti

### **Breakout Session I**

**Theme: *External Beam***

<b>Time</b>	<b>Topic / Title</b>	<b>Speaker</b>	<b>Affiliation</b>
1:45-2:05	Measurements of stopping powers using single electron counting	Malcom McEwan	NRC Canada
2:05-2:25	The physics of proton therapy	Wayne Newhauser	LSU, Dept. of Medical Physics
2:25-2:45	Small field dosimetry in radiotherapy from a standpoint of basic research	Guerda Massillon	Univ. Nacional Autonoma de Mexico
2:45-3:30	Questions for speakers and discussion on "current needs"	Interactive discussion with audience	

3:30 - 3:45

Break

### **Breakout Session II**

**Theme: *Brachytherapy***

<b>Time</b>	<b>Topic</b>	<b>Speaker</b>	<b>Affiliation</b>
3:45-4:05	End of life for brachytherapy devices	Zoubir Ouhib	Lynn Cancer Institute, Boca Raton, FL
4:05-4:25	New NIST standard for electronic brachytherapy	Michael Mitch	NIST
4:25-4:45	"Addressing the dosimetry challenges of using a titanium applicator with a low energy brachytherapy source."	Sam Simiele	Univ. of Wisconsin, Dept of Medical Physics
4:45-5:15	Questions for speakers and discussion on "current needs"	Interactive discussion with audience	

5:15

Adjourn

Note: For the MORNING plenary speakers and poster sessions please see FULL CONFERENCE AGENDA at [http://cirms.org/conference\\_agenda.html](http://cirms.org/conference_agenda.html)

## **AFTERNOON AGENDA: Tuesday April 28, 2015**

Medical Applications Working Group

Chairs: Regina Fulkerson, Wes Culberson and Ronnie Minniti

### **Breakout Session III**

**Theme: *Radiation Biology, "Research, Devices & Dosimetry"***

<b><u>Time</u></b>	<b><u>Topic</u></b>	<b><u>Speaker</u></b>	<b><u>Affiliation</u></b>
1:45-2:05	Dose is more than a number: the growing need for "radiobiology dosimetry standards"	Jim Deye	NIH/NCI (retired)
2:05-2:25	Output verification of radiobiological irradiators	Kurt Pedersen	Univ. of Wisconsin, Dept of Medical Physics
2:25-2:45	Novel high-throughput irradiators for in vitro radiation sensitivity bioassays	Bryan Bednarz	Univ. of Wisconsin, Dept of Medical Physics
2:45-3:30	Questions for speakers and discussion on "current needs"	Interactive discussion with audience	

3:30 - 3:45

Break

### **Breakout Session IV**

**Theme: *Frontiers of Medical Physics***

<b><u>Time</u></b>	<b><u>Topic</u></b>	<b><u>Speaker</u></b>	<b><u>Affiliation</u></b>
3:45-4:05	Ionization Chamber Construction	Brian Hooten	Standard Imaging
4:05-4:25	Stereotactic Radiotherapy for Breast Cancer	Yildirim Mutaf	Univ. of Maryland, Dept. of Radiation Oncology
4:25-4:45	Commissioning an IRay System for ocular stereotaxy using Integrated Tissue Air Ratio	Justin Hanlon	Oraya Therapeutics, Inc.
4:45-5:15	Questions for speakers and discussion on "current needs"	Interactive discussion with audience	

5:15

Adjourn

Note: For the MORNING plenary speakers and poster sessions please see FULL CONFERENCE AGENDA at  
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