

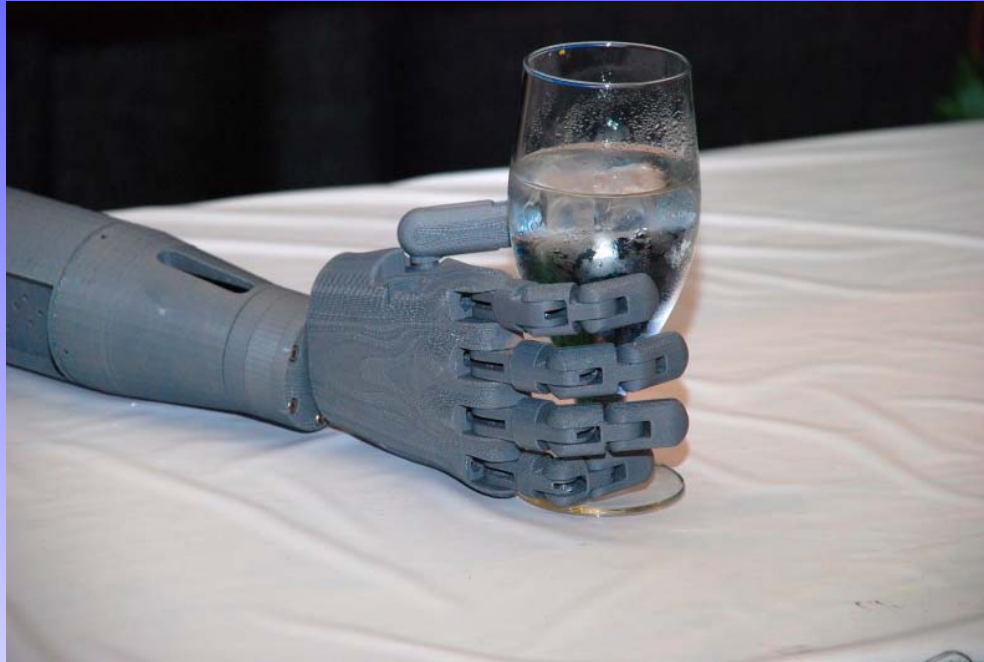


# RRSD NEWS

Winter/Spring, 2012



THE NEWSLETTER FOR THE ANS ROBOTICS AND REMOTE SYSTEMS DIVISION





# RRSD NEWS

Robotics and Remote Systems Division  
March, 2012

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## Message From the Chair

*Thomas Nance, Savannah River National Laboratory*



Welcome to the 2012 Winter/Spring Edition of the RRSD News.

A lot has been accomplished over the last year and great things are planned for the remainder of the June 2011 to June 2012 year. Last fall, RRSD held its Topical in Knoxville with numerous papers being presented and

technical exchange being fostered. The Ray Goertz Robotics and Remote Systems Award was presented and a number of RRSD members were recognized for service which is described in more detail in articles in this newsletter.

A number of other meaningful improvements are being worked on by your RRSD Executive Committee (ExCom). Work toward the next Topical is underway. An ExCom member, Rick Minichan, has been tasked to lead the effort into possible hosting of the next Topical by the Savannah River National Laboratory (SRNL) in as early as 2013 in Charleston or Savannah. Other upcoming paper opportunities are being evaluated in the 2012 ANS Annual and Winter meetings by another ExCom member, Tim McJunkin. Another ExCom member, Colleen Shelton-Davis, is working to provide visibility for RRSD technology with a special addition of Nuclear News featuring RRSD articles in the next year with assistance from RRSD ExCom's Mark Noakes. Possible new means of obtaining funding are being evaluated to increase our ability to support student robotic

groups. Improved accessibility of student robotic groups to share information is also being evaluated by an ExCom member, Jeff Coughlin. Our RRSD webpage has been improved by ExCom's Mitch Pryor and Table of Contents of our Topicals have been listed to provide more information to our membership. Available topical papers are being loaded onto our webpage at no charge for access to further benefit our membership. The possibility of bringing new product information on robotics and remote systems to our membership is also being evaluated by Chris Eason of the RRSD ExCom with plans for ExCom's Rob Owen to assist with commercial interfacing. Improved recognition of our membership has also been put into motion as several new categories of RRSD awards have been made available through the RRSD ExCom's new Honors and Awards Chair, Duane Schmoker. The ExCom continues to work on society-wide recognition for its membership with support from past ANS President and current RRSD ExCom member Jim Tulenko. The RRSD Newsletter has also been turned over to member Sean Peterson to continue this communication vehicle for the RRSD. As you can see, organization of the ExCom has been changed with more delegation of responsibilities to further empower the committee to accomplish work for RRSD.

RRSD offers opportunities for technical exchange, honing presentation skills, networking, mentoring, and for being recognized by your peers. RRSD provides opportunities for mentoring of youth and for supporting their efforts as they grow in this field of endeavor. We hope that you support RRSD in the next year with your presence and papers of your robotic and remote system experience and accomplishments. We hope that

you invite your colleagues to join RRSD and improve the division and themselves. Lastly, we hope that you allow RRSD to support you and your colleagues through fostering technical exchange and peer recognition.

Thanks,  
Tom

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## RRSD Embedded Topical Session (Announcement)

*Tim McJunkin, Idaho National Laboratories,  
2012 Embedded Topical Chair*

The Robotics and Remote System Division is pleased to announce a full session of exciting papers at the American Nuclear Society's Annual Meeting this June 24-28 in Chicago. The session features a strong set of six presentations demonstrating the breadth and strength of research in robotics and remotes systems that is required in the nuclear energy field. Papers include international contributions from national laboratories, commercial companies and institutes. Technologies covered range from remote systems necessary for assessments in the worst-case scenarios, such as those experienced a year ago in Japan, to deployment of in-service inspection for nuclear energy systems. Join the division in June to explore the technologies in robotics and remote systems necessary for the nuclear energy industry to continue to move forward into the decades ahead.

## RRSD Honors and Awards

A number of honors and awards were presented by RRSD since the last newsletter. Members of the RRSD Executive Committee were recognized for their service to the division, the Ray Goertz award was presented and a member of the 2011 Topical Committee was recognized for service excellence. Student papers were also awarded at the graduate student level as described in the Topical article and young student robotics teams were also awarded funding for outstanding performance in a robotic competition held at the Topical.

Several members of the RRSD Executive Committee completed their terms of service on the committee and were recognized. Dr. Carl Crane, Mr. Brian Hatchell and Dr. Mark Noakes completed their service and were recognized at the Executive Committee meeting in June in Hollywood, Florida. Dr. Crane had been a member of the Executive Committee since being elected to serve starting in June 2004 as a member-at-large. Dr. Crane was elected to serve RRSD in the officer chain as Treasurer, Secretary, Vice Chair and as Chair. Dr. Crane has recently served as RRSD Ex-Officio and as the RRSD Nominating Chair. Carl will be missed as he turns his efforts to his teaching and research at the University of Florida. Mr. Brian Hatchell served on the committee since June 2008. Mr. Hatchell had supported the RRSD through his service as the RRSD Newsletter editor. During his tenure, Mr. Hatchell took one of the key means of communication within the division and improved the quality and content and doubled the number of issues produced annually. Brian will be missed as he continues his work at PNNL. Dr. Mark Noakes was also recognized for his service to the RRSD through his work on the Executive Committee since joining the committee in June 2008. Mark was recently elected to the officer chain and is currently serving as RRSD Treasurer.

A surprise presentation was made prior to the awarding of the Ray Goertz at the 2011 Topical. Dr. Mark Noakes was recognized for his Distinguished Service Excellence for his

contributions to the organizing committee of the Topical. Mark served as the lead paper recruiter and reviewer, lead recruiter of exhibitors, lead reviewer of student papers, served on the arrangements committee and worked for four years to make this Topical a reality for our division. The Ray Goertz Robotic & Remote Systems award was presented to Norbert Grant at the 2011 Topical, the 3rd International Joint Topical on Emergency Preparedness & Response and Robotics & Remote Systems. Mr. Grant graduated from college as a chemical engineer and served in the U.S. Army prior to his first 20 years in the nuclear field at Argonne National Laboratory. Upon moving to Oak Ridge in 1975, Mr. Grant became the manager of the Systems Development Group in the Engineering Systems Section responsible for developing equipment for advanced fuel reprocessing facilities including all remote handling. Mr. Grant finished out his career as Program Control Manager for the Robotics and Process Systems Division at Oak Ridge National Laboratory overseeing projects involving all types of remote handling equipment in support of spent nuclear fuel reprocessing. Mr. Grant was a key manager and technical lead in the pioneering of DOE contemporary remote handling and remote process systems developed from the mid-'70s through the early-'90s. Norbert also served the Remote Systems Technology Division (later becoming the RRSD) as an officer for eight years starting in 1977 including as Chair of the division and also served as the technical program chair or general chair for the 1978, 1984, 1985, 1987, 1990, 1992, and 1993 Topical meetings on robotics.

Congratulations to all of the award recipients for jobs well-done! Future award nominations can be made by contacting the RRSD Honors & Awards Chair Duane Schmoker through the RRSD Webpage under the "Honors & Awards" section.

## **RRSD participation at the ANS National Meetings**

The American Nuclear Society 2011 Winter Meeting was held in Washington DC during October 31-November 4, 2011. The RRSD Executive Committee met on October 31<sup>st</sup> from 12-4 PM to discuss current division business.

The American Nuclear Society 2012 Annual Meeting will be held in Chicago, IL during June 24-28, 2012. The RRSD Executive Committee will meet on June 24<sup>th</sup>, 2012. All members of RRSD are welcome to attend.

## **Nuclear News Articles**

Articles involving robotics and remote system for the nuclear industry can be published in the *Nuclear News*, a monthly newsletter magazine published by ANS. If you have an article that is appropriate for publication in *Nuclear News*, please contact Colleen Shelton-Davis, the RRSD Publication Chair, at [Colleen.Shelton-Davis@inl.gov](mailto:Colleen.Shelton-Davis@inl.gov)

## RRSD Funds Robotic Student Teams

*Jeff Coughlin, Savannah River National Laboratory,  
Student Support Chair*

Fostering student interest and participation in the field of robotics and remote systems is a priority for RRSD. A Student Support Fund created by the RRSD Executive Committee, relieves student costs related to involvement in this area. A portion of conference and membership fees are invested in the Student Support Fund. Student teams apply for a grant by using the instructions located at the RRSD homepage.

In the spring / summer of 2011, RRSD disbursed grants to 16 different Lego League teams. Many of these teams have competed and placed at the top of State Level tournaments in 2011.

### Student Teams funded in the spring and their location

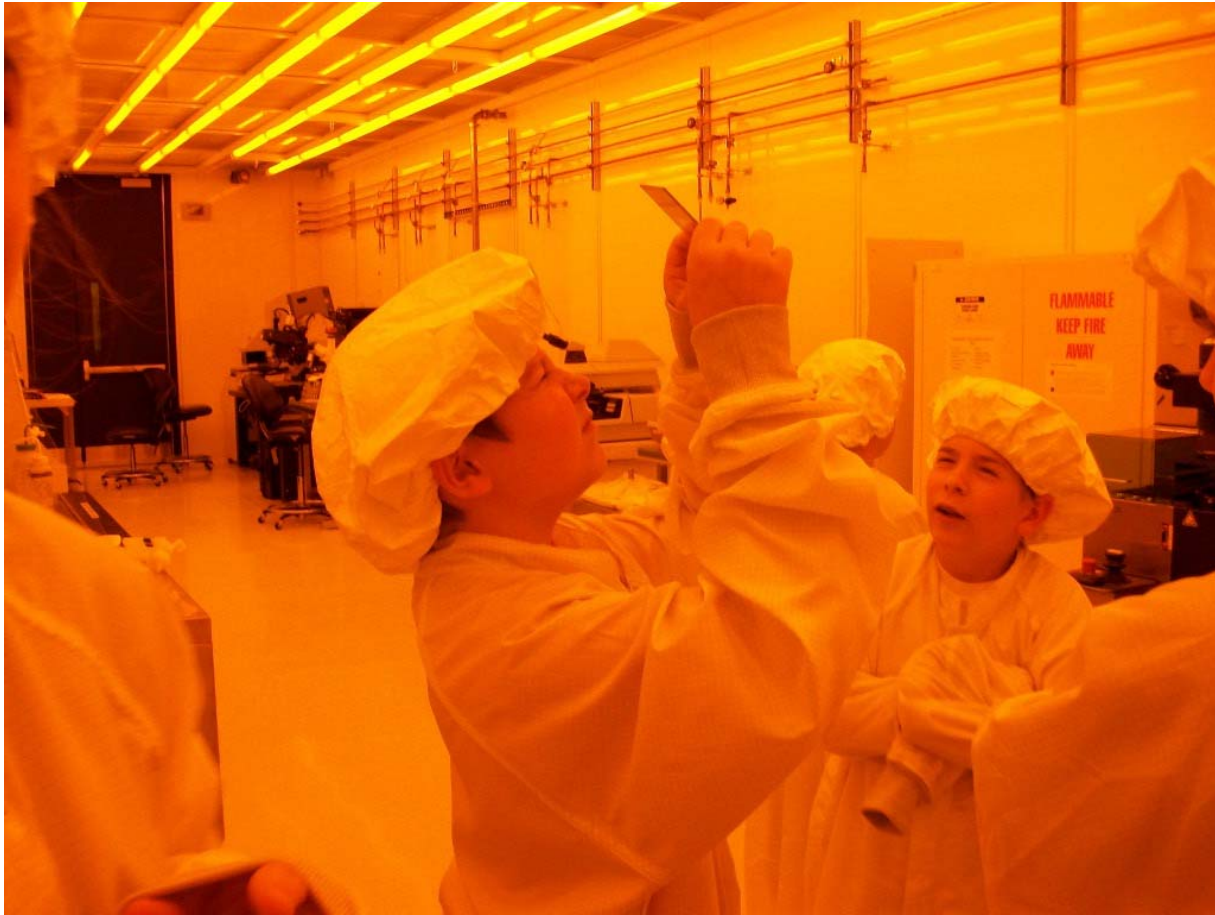
Team	Location
Eagle Cove School Lego Robotics Club	Pasadena, MD
EMS FIRST Robotics 4H Club, Windermere Prep School	Windermere, FL
Team Intrepid from Horn Lake High School 3411	Horn Lake, MS
FIRST Robotics Team #179	Riviera Beach, FL
Jaguar Robotics	Gretna, LA
McMain Hurricans Robotics Team 1920	New Orleans, LA
West Monroe High School Robotics Team	West Monroe, LA
Straughn High School Tiger Tech Robotics Club	Andalusia, AL
Poinciana High School; The Riddler Revolution	Kissimmee, FL
FIRST Robotics Team, Imagine	Ocala, FL
Grissom High School Robotics Team	Huntsville, AL
Northshore High School Robotics Team 1912	Slidell, LA
First Lego Community Team	Louisville, KY
FRC Team #233, The PINK Team	Rockledge, FL

### Student Teams funded in the summer and their location

Team	Location
HFHG-Louisville Robotics Institute	Louisville, KY
FRC Team #233, The PINK Team	Rockledge, FL



The following are a few pictures of the recent student robotic team action.



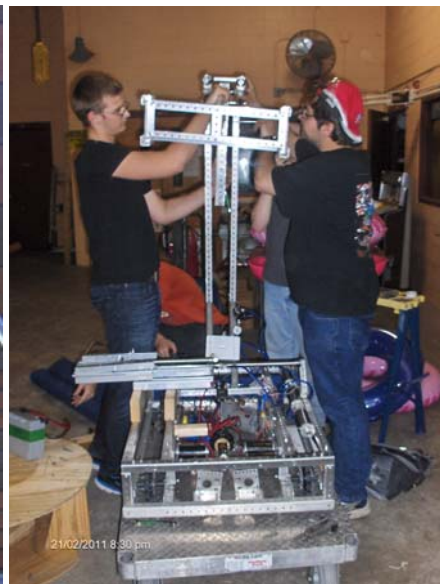
Middle School teams “Lego Men” & “Nano Fury” in the clean room at Univ. of Louisville attempting to spy nano-particles.



The same two teams; pictured in a more relaxed state and in their normal environment.



Typical playing field action at the regional level – the picture above was taken in Mt. Washington, KY.



Shown above is one of the many supported high school teams. This team is called “The Riddler Revolution” associated with Poinciana High School located in Kissimmee FL.



## 2011 Joint Topical

*Mark Noakes Oak Ridge National Laboratory,  
Treasurer*

The Third International Joint Topical Meeting on Emergency Preparedness & Response and Robotics & Remote Systems was held on August 7 – 10, 2011 in Knoxville, TN. The primary sponsors were ANS Robotics and Remote Systems Division, the Oak Ridge/Knoxville section of the American Nuclear Society, Oak Ridge National Laboratory (ORNL), University of Tennessee at Knoxville (UTK) College of Engineering, University of North Carolina Charlotte (UNC) Research Institute, and the Oak Ridge Associated Universities. The conference was co-chaired by Barry Burks (UNC) and Jim Fairobent (Department of Energy (DOE)). Bill Hamel (UTK) and Carl Mazzola (Shaw Environmental) served as technical co-chairs. Norb Grant (ORNL, retired) and John Harris (DOE, retired) served as honorary chairs.



A total of 161 people attended the conference with an additional 80 students and parents participating in the sponsored student robotics competition. Besides attendees from the United States, the United Kingdom, Slovakia, France, Poland, Belgium, Germany, Canada, and Japan were represented. Seventeen exhibitors also provided the conference with a focal point to gather and discuss the latest hardware and projects.

The technical program was divided into two topics—Robotics & Remote Systems and Emergency Preparedness & Response—with two parallel tracks of sessions in each topical area. There were a total of 120 technical

presentations spread among 32 sessions. Industry, national labs, and universities contributed a diverse range of practical applications and research and development in the robotics and remote systems and emergency preparedness areas.



Special panels sessions provided added value to the conference. Dina Siegel and Frank Roberto cochaired a session on Biosafety. Philippe Garrec of the French CEA led a session on US Involvement in the ISO Working Group on International Standards for Telerobotics. “Fukushima: Lessons Learned and Roadmap to Restoration” was moderated by Fred Peretz (ORNL) and Michele Wolfgram (ORNL) and delivered by Jeff Binder (Fuel Cycle and Isotopes Division Director, ORNL), Daniel Blumenthal



(Manager, Consequence Management Program, National Nuclear Security Administration), John Nassstrom (Associate Program Leader, National Atmospheric Release Advisory Center, Lawrence Livermore National Laboratory), and Derek Wadsworth (Robotic and Intelligent Systems Manager, Idaho National Laboratory).



Quality keynote speakers were also a highlight of the conference. Dr. Richard Voyles, University of Denver, provided the opening keynote speech titled “ From Side-lipping Locomotion to Shape-shifting Polymers: Looking Beyond Treads and Wheels. Peter MacInnes of Schilling Robotics, LLC provided the closing keynote on “Applications of Remote Systems in Response to the Oil Leak in the Gulf of Mexico.”

A tour of the Oak Ridge National Laboratory Spallation Neutron Source (SNS) facility was held immediately after the close of the conference. The tour included state-of-the-art hot cell remote process systems and remote handling equipment critical to maintaining the operation of the SNS. The tour was well attended.



The student program is always an important part of any RRSN-related conference. RRSN presented awards totaling \$1200 to the five best student paper awards. The graduate students were from The University of Texas at Austin and Georgia Tech University. A new program this year also pitted younger students against each other in a robot sumo wrestler competition where each robot attempts to push the other out of a four-foot diameter circle in less than three minutes. A total of ten teams competed with the top four teams splitting \$2000. The students injected much energy, noise, and enthusiasm into the conference.

Norb Grant was awarded the Ray Goertz award for his lifelong service to the field of robotics and remote systems in hazardous environments.

## RRSD Executive Committee Officers

Chair: Thomas Nance, Savannah River National Laboratory  
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Vice-Chair: Reid Kress, Y-12 National Security Complex  
865-576-0461 [kressrl@y12.doe.gov](mailto:kressrl@y12.doe.gov)

Secretary: James Tulenko, University of Florida  
352-219-3865 ext. 111 [tulenko@ufl.edu](mailto:tulenko@ufl.edu)

Treasurer: Mark Noakes, Oak Ridge National Laboratory  
865-574-5695 [noakesmw@ornl.gov](mailto:noakesmw@ornl.gov)

Ex-Officio Chair: Carl Crane, University of Florida (Nominations Chair)  
352-392-9461 [ccrane@ufl.edu](mailto:ccrane@ufl.edu)

## Executive Committee Members at Large

2012 Chris Eason, (New Products Guide Chair)  
STÄUBLI Corporation  
864-486-5472 [c.eason@staubli.com](mailto:c.eason@staubli.com)

2012 Rob Owen,  
PaR Systems, Inc.  
651-484-7261 [rowen@par.com](mailto:rowen@par.com)

2012 Colleen Shelton-Davis, (Publications Chair)  
Idaho National Laboratory  
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2013 Sean Peterson, (RRSD Newsletter Editor)  
Central Research Laboratories  
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2013 Mitch Pryor, (Webmaster)  
University of Texas at Austin  
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2013 Duane Schmoker, (Honors & Awards Chair)  
URS  
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2014 Richard Minichan, (2013 Topical Chair)  
Savannah River National Laboratory  
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2014 Timothy McJunkin, (2012 Embedded Topical Chair)  
Idaho National Laboratory  
208-526-7895 [timothy.mcjunkin@inl.gov](mailto:timothy.mcjunkin@inl.gov)

2014 Jeffrey Coughlin, (Student Support Chair)  
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