

# 2010 International Symposium on Spectral Sensing Research

Dr. James O. Jensen  
Co-Chair of the Steering Committee  
2010 ISSSR

Research and Technology Directorate  
U.S. Army Edgewood Chemical Biological Center

## **2010 ISSSR Mission**

**The 2010 International Symposium on Spectral Sensing Research (2010 ISSSR)** will continue a longstanding tradition of conducting a bi-annual science and engineering event for the purpose of advancing the state-of-the-art in spectroscopic-based sensing science and electronic technology capabilities. Here, one of the primary strategies is the creation of new technology-program oriented networks that serve to accelerate the key research and development efforts that underpin the leading spectroscopic-based early-warning sensor capabilities.

- **First ISSSR was held in 1992**
- **ISSSR held roughly every two years**
- **2010 ISSSR will be the tenth meeting**

# Locations and Dates

- 1992:** Maui, Hawaii, 15-20 November 1992
- 1994:** San Diego, California, 10-15 July 1994
- 1995:** Melbourne, Australia, 26 November to 1 December 1995
- 1997:** San Diego, California, 14-19 December 1997
- 1999:** Las Vegas, Nevada, 31 October to 4 November 1999
- 2001:** Quebec City, Canada, 10-15 June 2001
- 2003:** Santa Barbara, California, 2-6 June 2003
- 2006:** Bar Harbor, Maine, 29 May to 2 June 2006
- 2008:** Hoboken, New Jersey, 23-27 June 2008
- 2010:** Springfield, Missouri, 21-24 June 2010

# Conference Themes

- 1992:** High Resolution Spectral Sensing of the Environment
- 1994:** Dual-Use Technology
- 1995:** Crisis Support
- 1997:** Observation to Information
- 1999:** Systems and Sensors for the New Millennium
- 2001:** Sensing from Space
- 2003:** Sensing from Land, Sea, Air, and Space
- 2006:** Rapidly Advancing Spectroscopic (DC to X-ray) Sensing Science and Technology Base for enabling “reagentless” Early-Warning Monitoring of Chemical, Biological and Radiological contamination in Water, on Surfaces and within Air.
- 2008:** Spectroscopic Sensing Science & Electronic Technology with a Special Emphasis on Enhancement Algorithms for Land, Sea and Air Threat-Agent Detection
- 2010:** Bridging the Gap from Emerging Technology to the Warfighter

- From 1992 to 2003 the ISSSR was a Multi-agency Government Conference on Spectral Sensing
- 2006 to 2010 ISSSR held jointly with University Support
  - 2006 University of Maine
  - 2008 Stevens Institute of Technology
  - 2010 Missouri State University (Jordan Valley Innovation Center)

# ISSSR Agenda

**First Three Days of the ISSSR will be held at the University Plaza Hotel & Convention Center, the Jordan Valley Innovation Center (JVIC) and Missouri State University (MSU) and incorporate the following basic agenda from June 21-23:**

**First Day: Major CBRNE Challenges and Promising S&T Opportunities**

**Second Day: Science & Technology for Land, Sea & Air Applications**

**Third Day: Frontier & Emerging Spectroscopic Science & Technology**

**A Special Session of the 2010 ISSSR will be held at Fort Leonard Wood on June 24. This session will include examples of research and development efforts that are “bridging the gap from emerging technology to the warfighter.”**

**Fourth Day: Emerging Technology for the Warfighter**

**Time Schedule****Emerging Technology for the Warfighter**

08:50 – 10:30	Morning Plenary @ USO Building, Fort Leonard Wood
08:50	Introduction: Dr. James Jensen, U.S. Army Edgewood Chemical Biological Center
09:00	Elliott Brown Physical Domains, LLC
09:30	Shubhra Gangopadhyay University of Missouri-Columbia
10:00	Jan Halamek Clarkson University
10:30 – 12:00	Free Time – Exhibit Viewing
12:00 – 13:00	Lunch @ USO Building
13:00-14:30	Afternoon Plenary @ Abrams Theater, Fort Leonard Wood
13:00	Jean-Marc Theriault Defence R&D Canada-Valcartier
13:30	William Marinelli Physical Sciences, Inc.
14:00	Ani Weling Foster Miller
15:45	Bus leaves for Springfield (passengers should board at 15:30)
17:30	Arrive University Plaza Hotel, Springfield – End of Conference



<b>Thurs June 24</b>	<b>Location: USO Bldg FORT LEONARD WOOD</b>
	<b>Plenary I</b>
	<b>Chair: James Jensen, <i>U.S. Army ECBC</i></b>
<b>8:50-9:00</b>	<b>INTRODUCTION</b>
	<b>James Jensen, <i>U.S. Army ECBC</i></b>
<b>9:00-9:30</b>	<b>TRACKING CHEMICAL THREATS AT MACH SPEEDS: THE CHALLENGE OF DETECTING BULLETS IN FLIGHT</b>
	<b>Elliot Brown, <i>Physical Domains, LLC</i></b>
<b>9:30-10:00</b>	<b>MOLECULARLY IMPRINTED POLYMER MICROSPHERES LABELED WITH QUANTUM DOTS FOR DETECTION OF NITROAROMATIC EXPLOSIVES</b>
	<b>Shubhra Gangopadhyay, <i>University of Missouri-Columbia</i></b>
<b>10:00-10:30</b>	<b>FIELD HOSPITAL ON A CHIP: DEVELOPMENT OF BIO-LOGIC BASED ENZYMATIC ARCHITECTURES FOR "SENSE AND THREAT" OF BATTLEFIELD INJURIES</b>
	<b>Jan Halamek, <i>Clarkson University</i></b>

<b>Thurs June 24</b>	<b>Location: Abrams Theater FORT LEONARD WOOD</b>
	<b>Plenary II</b>
	<b>Chair: James Jensen, <i>U.S. Army ECBC</i></b>
<b>13:00- 13:30</b>	<b>REAL-TIME PASSIVE STANDOFF CHEMICAL DETECTION WITH CATSI EDM: SYSTEM DESCRIPTION AND TEST RESULTS</b>
	<b>Jean-Marc Theriault, <i>Defence R&amp;D Canada-Valcartier</i></b>
<b>13:30- 14:00</b>	<b>AIRIS STANDOFF MULTISPECTRAL SENSOR FOR THE DETECTION OF VAPOR AND SURFACE CONTAMINATION</b>
	<b>William Marinelli, <i>Physical Sciences, Inc.</i></b>
<b>14:00- 14:30</b>	<b>INFRARED BIO-AEROSOL THREAT ALERT (IBATA) SYSTEM</b>
	<b>Ani Weling, <i>Foster Miller</i></b>

# Special Thanks to

**Mr. Barrett Parker**

**Conference Chair of ISSSR 2010**

Technical Director

Joint CBRN Combat Developers

U.S. Army Maneuver Support Center (MANSCEN)

Fort Leonard Wood

- Keynote Speaker in ISSSR 2006 at Bar Harbor, ME
- Suggested that the ISSSR 2010 be part of CBRN(2010) at Ft. Leonard Wood
- Coordinated organizing efforts of CBRN and ISSSR

Special Thanks to

**LTC Christopher Chesney**

U.S. Army CBRN School, Chief of Staff  
Fort Leonard Wood

**Mr. Russell Gehrlein**

U.S. Army CBRN School, Operations Officer  
Fort Leonard Wood

# Goals of the 2010 ISSSR

- Advance scientific research in the state of Missouri and elsewhere.
- Bridge the gap between scientists and developers in support of the warfighter, particularly in the area of chemical and biological defense.
- Highlight Innovation Science & Technology Partnerships for Meeting the Needs of Future Warfighters.
- Advance Spectral Sensing (reagentless sensing)