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Explosives (CBRNE) Sensing XIV***

Augustus Way Fountain III
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Introduction

This year's conference was especially bitter sweet from my perspective. Coming off last year's successful move of the Defense Security and Sensing Symposium from Orlando to Baltimore, this year the combined effects of sequestration and travel restrictions caused a number of Department of Defense authors to be forced to withdraw or send substitute presenters. Despite these limitations, participation throughout the conference was at least on par with last year—or at least I am told, since I myself was not allowed to attend the conference in person and had to experience it vicariously through my session chairs. With that, I have to thank the session chairs who were approved to attend by their parent organizations and without whom I would not have been able to pull this conference off: Dr. Chris Carter, Dr. Anna Tedeschi, Dr. Jerome Braun, Dr. Jim Placke, and Mr. Harry Ing. Without your tireless support chairing the individual sessions, this conference would have been an utter failure. I also need to thank Rebecca Bruan and Greg Mogilevsky, my SETA support contractors for giving me the play by play analysis of each talk and a daily report on the conference.

Chris Carter did an excellent job chairing the chemical sensing sessions on Day 1. The most vivacious talk was given by Timothy Wilkinson from DeCipher. His talk was titled "Development of SERS monitoring of fuel markers to prevent fraud". He uses a proprietary SERS marker to label government subsidized fuels in Ecuador and the Philippines. He and his team dose fuel in trucks that make deliveries to large tankers with the Ag based marker, and check fuel tankers at various ports. Pirates from tankers who steal the government subsidized fuel are caught at the ports. He made it clear that because of success of the SERS techniques "he is able to catch criminals where people are in jail, hung, and shot. This is serious business". At another point I am told that he said "The session chair, Dr. Augustus Way Fountain, has said 'why is SERS stuck in the laboratory?'". To him I answer - it is not, and I use it daily. I'm sorry that I missed the talk and would have appreciated the debate.

Anna Tedeschi chaired Day 2 of the conference. The morning session was full of talks relating to remote detection of explosives techniques; while the afternoon session dealt with applications of explosive detection. The attendance for these talks was quite high and I think the readers will find these papers interesting.

Jerome Braun soldiered on chairing the biological detection talks in Day 3, where unfortunately there were two cancelled talks when the speakers unexpectedly did not show up. The additional time was used to address the questions from other speakers. On this day especially, many talks had replacement speakers; typically contractors speaking on behalf of the government principle investigator. Jim Placke and Harry Ing both covered the radiation and nuclear sensing sessions; also on Day 3. There were some very interesting talks presented that

showed novel materials for neutron and alpha radiation detection. The group from the French Nuclear Commission presented novel plastic scintillation devices that were able to discriminate between alpha and neutron radiation at a cost of \$0.06/gram. The Australian group from University of Western Australia presented CdMnTe detectors, which are produced with much greater efficiency than the commercial CdZnTe detectors and are able to produce a signal on par with the commercial device. Finally, there are many advances in other solid state detectors to replace the gas ^3He detectors.

The final day was a joint session with Micro- and Nano- technologies for Standoff Detection. Unfortunately, there were a number of cancellations. Although not a talk discussing standoff detection, the talk by Jay Grate was interesting. It was a talk centered around monitoring supercritical CO_2 diffusion and flows through a device designed to mimic sediment rock interfaces.

I hope that this was helpful in recapping the conference. Overall, given the lack of Government participation, travel restrictions, sequestration and even with the multiple cancellations, this was a very successful and interesting conference. I look forward to next year's conference and hopefully I will even be able to attend.

Augustus Way Fountain III, Ph.D.