

# PROCEEDINGS OF SPIE

## ***Technologies for Optical Countermeasures XIII***

**David H. Titterton**  
**Robert J. Grasso**  
**Mark A. Richardson**  
*Editors*

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## Introduction

This year's conference, at the Edinburgh International Conference Centre, was the thirteenth time this conference was held. Conducted over two days, it offered a full complement of papers pertinent to Infrared and Electro-Optical Countermeasures, Threat Detection and Warning, Lasers and Sources for IRCM/EOCM, Pointing and Beam Control, Threats and Threat Characteristics, and Laser and Atmospheric Effects. As in past conferences, we conducted our panel discussion debating the topic of, "Factors that Affect Installed IRCM System Performance." This discussion, which has been ongoing past several years, is very popular and always leads to some exceptionally interesting discussion and debate. It was also used as a precursor to a new session that will be commenced next year dealing specifically with external events that have a direct impact on IRCM/EOCM system performance once it is installed and operating on a platform.

The conference consisted of nine sessions specifically focused upon: Lasers and Sources; Threats, Threat Detection, and Discrimination; Quantum Cascade Lasers; Countermeasure Systems; Atmospheric Effects; Laser Effects; Modelling and Simulation, and; Pointing and Beam Control. There was also a poster session. Three exceptional keynote papers were presented which addressed: 1) "New Frontiers in Quantum Cascade Lasers: High-Power Solid-State Frequency Comb and Terahertz Sources at Room Temperature;" 2) "NATO EW Challenge for Platform Protection," and; 3) "Recent Progress in MWIR and LWIR Quantum Cascade Lasers."

In the following sessions there were many excellent invited and contributed presentations covering mid-IR quantum cascade and fibre laser development, detection of optics at range, threat modelling and simulation, countermeasure and electro-optic systems design for manufacture, atmospheric and laser effects, modelling and simulation, and pointing and beam control. We had an excellent poster paper on "Accuracy analysis of a mobile tracking system for angular position determination of flying targets." Of particular interest was our session on Laser Effects. Here, we had several exceptional papers on laser effects with concentration on visible laser dazzle and simulating the human eye to quantitatively assess laser dazzling system performance. There were several excellent papers dealing with "Experimental and Numerical Analysis of Propagation of High-Energy Beams," and "Helicopter Engine Exhaust Rotor Downwash Effects on Laser Beams." Both papers deal with what we get at the end of the propagation chain once the effects of rotor downwash, turbulence, and absorption and scattering take their toll on the otherwise perfect beam emanating from our system.

We wish to thank all of our presenters for delivering an outstanding conference; moreover, we also thank our Programme Committee for their continued support



and willingness to chair the various sessions, which is also appreciated by SPIE. The chairmen encouraged the audience to consider topics for presentation and discussion at next year's conference and symposium, to be held in Warsaw, Poland.

**David H. Titterton**  
**Robert J. Grasso**  
**Mark A. Richardson**