

Multispectral imaging camera reveals behaviour of materials impacted at high velocity

Specialised Imaging reports that the **Dlott group** in the Department of Chemistry at the **University of Illinois** (Urbana, USA) are using a **SIMX8 ultra high-speed framing camera** to study high-speed impact phenomena using multispectral imaging to analyse emitted wavelengths.

By using hyperspectral techniques, researchers are seeking to identify and characterize materials based on their unique spectral signatures. Using red and blue filters on different channels of the SIMX8 camera, has enabled research to capture time-resolved images with high spatial resolution.



Image captions: A: SIMX ultra high-speed framing cameras for multispectral imaging research

Professor Dana D Dlott

(William H. and Janet G. Lycan Research Professor of Chemistry at the University of Illinois) said “Our investment in a SIMX-8 camera has resulted in many advances in our laboratory which studies the behaviour of materials under high-velocity impact produced using a laser to launch hypervelocity projectiles. It has allowed us to see and measure the temperature of the tiny fleeting hot spots in explosives as a prelude to detonation and to see how our tiny projectiles, which are in effect tiny hypersonic missiles, interact with particles and droplets in the atmosphere. I have



continually been impressed with the time and space resolution of the camera and the great customer support from Specialised Imaging.”

The SIMX family of high-resolution multichannel framing cameras, can capture up to 16 high resolution images without creating shading or parallax, at up to 1 billion frames per second. Now available with the option of user interchangeable filters the SIMX camera is making multispectral imaging simpler. Using filters on a SIMX camera allows researchers to obtain spectral, spatial, and temporal information for comparing different materials by focusing on their different spectral signatures. Users can now easily interchange filters on all eight channels of the SMX-8. The SIMX-8 camera captures one high resolution image per channel, offering the potential to capture 8 mono/filtered images and potentially two monochrome and two full colour images using red, green, and blue filters.

For further information

on the SIMX family of ultra high-speed framing cameras please visit <https://www.specialised-imaging.com/products/framing-cameras/simx> or contact Specialised Imaging on +44-1442-827728 (UK) / +1-951-296-6406 (USA) / +49-8141-666-8950 (Germany) / +86-1068-651-769 (China) / info@specialised-imaging.com.

The Dlott group

is an interdisciplinary experimental research group based in the School of Chemical Sciences at the University of Illinois Urbana-Champaign. The group investigate condensed matter dynamics under extreme conditions by combining expertise in the areas of chemical physics, physical chemistry, chemical engineering, laser spectroscopy, physics, solid-state chemistry, mechanical engineering, materials science, and aerospace engineering. For further information please visit <https://dlottgroup.web.illinois.edu/>.

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