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Raman spectral characteristics of toxic chemicals analyzed by a 248 nm mobile Raman spectrometer

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A Raman Agent Monitoring System (RAMS) is a technique which exploits Raman scattering to provide stand-off detection and identification of toxic chemicals such as chemical warfare agents and toxic industrial chemicals deposited on the ground surfaces. The RAMS collects counts on photons emitted by an agent on a surface through a telescope and displays the result on a spectrograph. Raman scattering occurs when light interacts with a molecule. The molecule vibrates and scatters wavelength shifted light. The wavelength shifts and their associated intensities are dependent on the size, shape, and bond strength of the molecule creating, thus, a distinct spectral signature for the associated chemical. In this research, we measured toxic chemicals with a RAMS, a 248 nm mobile Raman spectrometer, and analyzed Raman spectral signatures of Raman signals of that chemicals. These results can assist in selecting unique molecular markers for each chemical to allow real-time detection and identification of them in ground environments in moving.

Biography

Young-Su Jeong has completed his PhD from Korea Advanced Institute for Science and Technology (KAIST) in 2012. He is a Senior Researcher of Agency for Defense Development (ADD), ROK. He has published more than 18 papers in reputed journals.

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