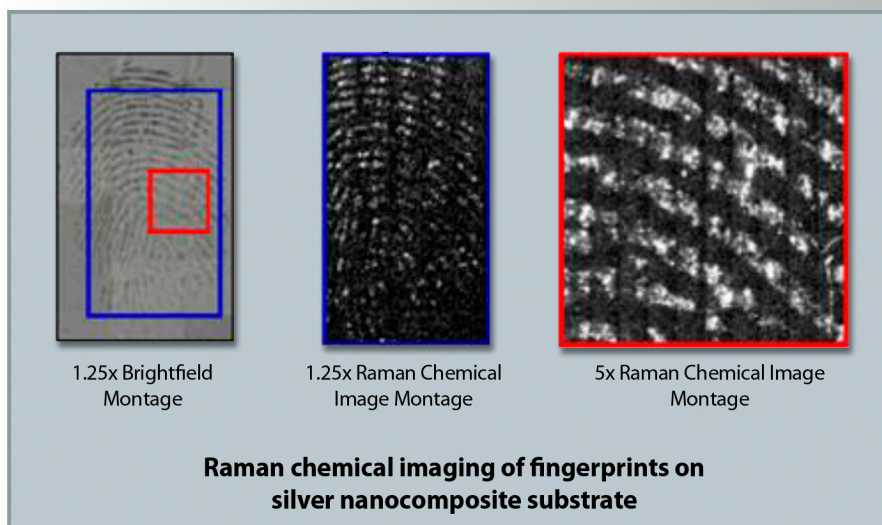


# Detection of Latent Prints by Raman Imaging

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## Technology Summary

Latent fingerprints, invisible to the naked eye, are formed mainly by secretions such as sweat, dirt, and oils. They are challenging to capture because there is often time for the print to decompose by the time imaging techniques are applied. To improve the range of tools available for crime scene investigation, ORNL researchers invented a method to detect and analyze latent prints on challenging surfaces.

Many fingerprints go undetected due to exposure to sunlight or other decomposition processes. Current techniques are also limited in their ability to image prints on surfaces such as skin or steel. By using a Raman spectroscopic technique, this invention can image difficult latent prints, while also detecting chemical species of interest, such as drugs, explosives, or firearms.

Raman surface-enhancing agents are deposited onto the surface of evidence and placed under a Raman Imager. A chemical spectrum is generated, allowing the evidence to be visualized. The technology is capable of imaging latent prints on porous and non-porous surfaces, and is especially useful for prints that are low in oil (or "clean") and children's fingerprints.

## Advantages

- Detects latent fingerprints on materials traditionally difficult to process
- Detects chemical species such as drugs, firearms, or explosive chemicals that may be present in the print

## Potential Applications

- Forensics

## Patent

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