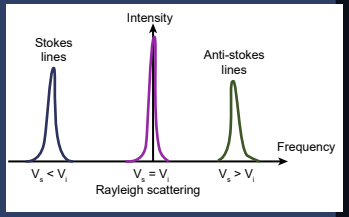
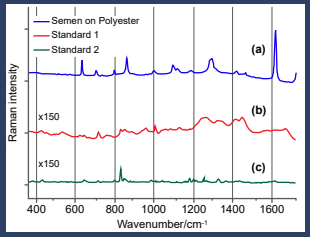
Universal detection of body fluid traces in situ with Raman hyperspectroscopy for forensic purposes: Evaluation of a new detection algorithm (HAMAND) using semen samples

- Advances in body fluid identification
- Challenge in substrate interference
- Analysis in situ affected
- Implementation in crime scene

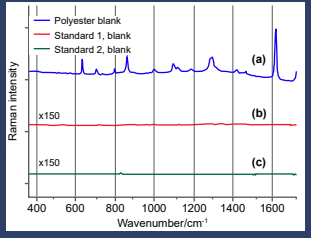
Raman spectroscopy



Breaking down semen spectrum into components



Fabric substrates suppresses organic Raman bands from semen



Algorithm preserves the selectivity of the Raman approach

New approach

Raman spectroscopy is combined with numerical differentiation (HAMAND) and multivariate curve resolution for the detection and identification of biological stains on strongly interfering substrates

Trace detection → **Advanced statistics** → **Spatial range**

Gregory McLaughlin[1] | Marisia A. Fikiet[1] | Masahiro Ando[2] | Hiro-o Hamaguchi[2] |Igor K. Lednev[1]

1 Department of Chemistry, University at Albany, State University of New York, Albany, United States

2 Spectroscopic Science Laboratory Co.,Kawasaki, Japan

Journal of RAMAN SPECTROSCOPY WILEY

GRAPHICAL ABSTRACT REPORT

Graphical abstract REPORT for your assignment *CATER_320_2*

Dear Author,

Your Graphical Abstract is included as part of this deliverable. This has been created based on the approved Storyboard content and design, and following journal guidelines.

Next steps for you:

- Please review the Graphical Abstract. As always, we're happy to address any queries you may have.
- Specifications of the final Graphical Abstract:

Figure type	Width (mm)	Height (mm)	Resolution (dpi)	File format	Font type	Color mode
Graphical Abstract	171	153.85	600	TIFF, EPS, PDF	Arial	RGB

Thank you for choosing us as your publication partner!

Best regards,

Wiley Editing Services