New Advance in Revolutionary 'Bullet Fingerprinting' Technique

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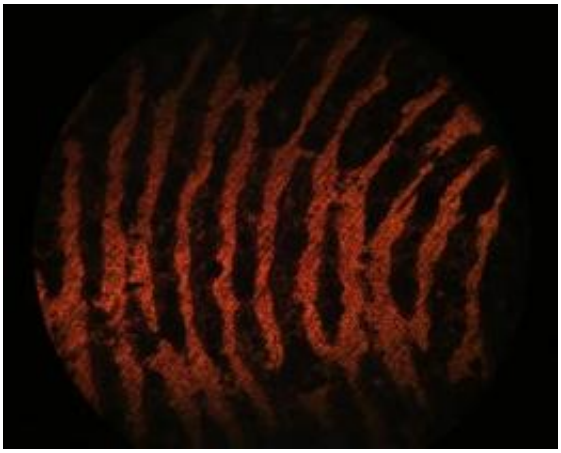


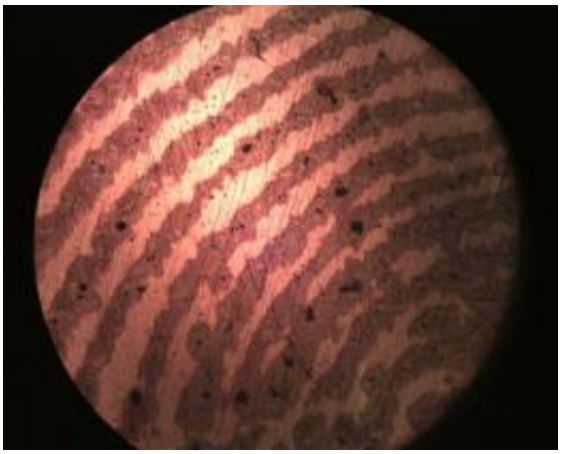
This is an optical microscope image of a fingerprint on brass. Credit: University of Leicester

(PhysOrg.com) -- 'Bullet fingerprinting' technology developed at the University of Leicester in collaboration with Northamptonshire Police is now being advanced in new ways.

Dr John Bond, from Northamptonshire Police Scientific Support Unit and an Honorary Research Fellow at the University of Leicester's Forensic Research Centre developed- in collaboration with University scientists - a method to 'visualise fingerprints' even after the print itself has been removed.

The revolutionary technique was named last year as one of Time Magazine's top 50 inventions of the year.

Now continuing work exploring this forensic technique in the Department of Chemistry at the University of Leicester is uncovering new ways of recovering fingerprints from metal surfaces.



This is an optical microscope image of a fingerprint on brass. Credit: University of Leicester

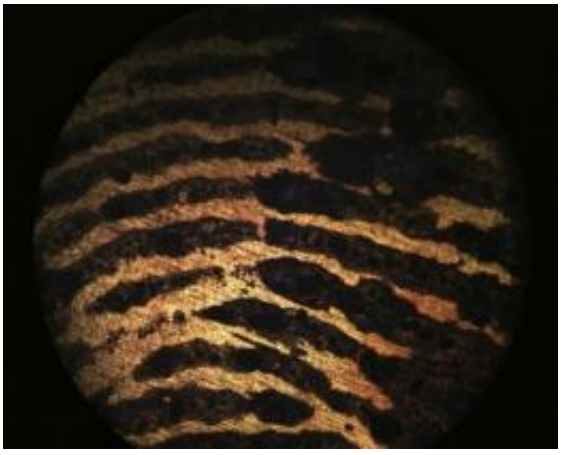
Researcher Alex Goddard has uncovered a natural technique that he believes is so simple, which can explain why it has been overlooked until now.

The technique involves studying the chemical and physical interactions occurring between the metal and the fingerprint sweat deposit. Using advanced surface imaging techniques, such as an Atomic Force Microscope, nanoscale observations of fingerprinted brass samples can identify optimum conditions to promote the natural enhancement of the fingerprint, vastly improving their recovery rate. It has also proven that components of the sweat deposit survive washing and wiping of the

surface.

Goddard explains, “Once a finger has touched the metal surface, a residue remains behind, this starts to react with the metal and an image of the fingerprint can be developed by use of elevated temperature and humidity, with the resultant image becoming a permanent feature on the surface of the metal.”

“Currently, fingerprint recovery from bullets is very low; less than 1 percent. This uses a natural process and even if it only leads to small increase in success rate, then that would be significant.



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“Previous recovery methods include applying powder to the material which can actually damage the evidence. This new technique promotes a naturally occurring process which does not involve adding anything to, or damaging, the evidence. Instead, it employs heat and humidity to promote the enhancement of the fingerprint image, there are also indications that it could be used after other techniques have failed,

perhaps as a last resort."

Dr John Bond said: "I am delighted that this research in the Chemistry Department is producing really interesting and useful results. This is an important area of forensic research and Northamptonshire Police is proud to be associated with the University. I look forward to further developments".

Alex Goddard recently presented his findings at the University of Leicester's Postgraduate Research Festival.

Provided by University of Leicester (news : web)