Hidden fingerprints revealed

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Hidden fingerprints can be now be revealed quickly and reliably thanks to two developments in nanotechnology. The news is reported in the latest edition of the *Royal Society of Chemistry journal Chemical Communications*.

The current method for revealing prints involves coating surfaces with a watery suspension of gold nanoparticles and citrate ions. Under acid conditions, the gold particles stick to the positively charged particles in the print.

The print is then developed using a solution of silver ions, which chemically react to leave an outline of silver along the ridges of the print.

However, the gold solution used in this method is unstable and results are difficult to repeat – so Dr Daniel Mandler, Dr Joseph Almog and their team at the Hebrew University of Jerusalem, Israel, have developed a more stable solution be adding hydrocarbon chains to the gold nanoparticles and suspending them in petroleum ether.

The prints produced using the new solution are very high quality and are developed after just three minutes immersion time.

The team have also extended their technique for use on non-porous surfaces, using a petrol ether suspension of cadmium selenide/zinc sulphide. In this case, the chemical reaction makes the prints fluoresce, so no additional developing stage is required.

Antonio Cantu, an expert in forensic science for the United States Secret Service in Washington, said: “The techniques are revolutionary and are apt to greatly improve the recovery of latent prints on evidence.”

Dr Claude Roux, director of the Centre for Forensic Science at the University of Technology, Sydney, Australia, said: “This use of nanotechnology in the fingerprint community can bring novel and practical solutions to develop and enhance latent fingerprints that would otherwise remain undetected.”

Source: RCS

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