

Applications of Nanotechnology in Forensic Science

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Forensic Science is multi-disciplinary field that broadly means '*science related to courts*' it encompasses a wide range of classical sciences, applied sciences and specialist areas. Since its origins in the 16th century, Forensic Science has embraced advances in our understanding of human anatomy and pathology, analytical chemistry and molecular biology. Forensic Scientist from Alexandre Lacassagne to Sir Alec Jeffries have applied current techniques to criminal cases and as a result revolutionized the field. Nanotechnology is now being applied and used in a range of forensic contexts and has the potential to change the way we examine evidence.

Most research and development of nanotechnology in forensic science focus on the improvement of DNA microchips and arrays. However, techniques routinely used for the

analysis of nanomaterials have been adapted/ modified and applied to others areas of Forensic Science including, electron microscopy (transmission electron microscopy, TEM and scanning electron microscopy, SEM), scanning probe microscope (SPM), Raman Microspectroscopy (Micro-Raman). These instruments have been used for the analysis of a range of forensic evidence types such as fingerprints, drugs, questioned documents and bloodstains and offer valuable insights potential useful in a criminal investigation.

Nanotechnology is beginning to have an impact on the handling of evidence at crime scenes, its analysis in the laboratory and its presentation in the court room. This talk aims to highlight some of these applications of Nanotechnology in Forensic Science.