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APPLICATIONS OF SYNCHROTRON INFRARED MICROSPECTROSCOPY TO THE STUDY OF FINGERPRINTS.

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Synchrotron infrared microspectroscopy has been used to study chemical markers and profiles of human fingerprints in the mid-infrared region (4000-400 cm^{-1}). Band intensities and band intensity ratios for functional groups of chemical molecules that are inherent to the experimental system are discussed in the context of molecular species that can be identified by comparison to infrared spectra that have been reported previously for identified chemical components. Mapping of chemical heterogeneities using spectral markers is presented and discussed. Changes in the chemistry of the fingerprint will be discussed in context of the aging process which is reflected in the changes in the infrared spectra. Also, the use of the technique for chemical and biological profiling of an individual using his fingerprint is discussed.

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