Professor Jan Halamek was awarded a three year DOJ/NIJ grant for the development of novel fingerprint analysis concepts. A simple test performed at a crime scene may help forensic scientists determine whether a fingerprint belongs to a man or a woman. The systems described are designed to provide easily interpretable results which will make it possible for all members of law enforcement to conduct the assay and understand the results, regardless of the level of scientific knowledge or specialized training. The successful development of this concept will lead to a new treatment of fingerprints as a source of evidence as well as aid in accelerating the rate of criminal investigations. The findings aim to move toward looking at the chemical content within the fingerprint, as opposed to relying on simply the fingerprint image.