

www.azte.com



System and Method for Automated Bioparticle Recognition AZTE Case # M07-088

Invention Description

Present day society is constantly demanding enhanced security for location and identification for both friend and foe. One avenue is biometric signatures, where standoff and clandestine systems are highly desirable. A biometric signature that holds great promise, but has not been exploited is biosignatures for subjects of interest gathered airborne samples. Until recently exploiting this signature was not recognized or technically feasible.

Researchers at Arizona State University and collaborators have developed a revolutionary method and platform to recognize and characterize aerosolized bioparticles. The signatures derived form the aerosolized samples can be used for high throughput analysis and identification of friend and foe. This is achieved using an apparatus that collects bioparticles from the environments, places them into a solution, selects particularly information-rich bioparticles and provides 'signature rich' detection. This is achieved using the physical properties of the aerosols and biochemical analysis of select particles.

Potential Applications

The market for automated recognition systems is poised to grow rapidly, fueled by the need for identification systems, and the emergence of bioparticle recognition technologies. This invention has application potential in:

- Scientific Instrumentation
- Homeland Security
- Building Health
- Forensics
- Health
- Environmental Monitoring

Benefits and Advantages

Until recently, using DNA fingerprinting, forensics, facial/voice recognition, entomology and a few others were the primary alternatives to forensic analysis allowing location and identification of individuals. The advanced process of using aerosolized bioparticle recognition offers a way to identify the source of shed bioparticles to the individual human being and particular geographic area. This offers superior advantage over existing automated recognition systems.

- Aerosol Detection –Allows for the ability to detect human material such as skin shed, and sternutation in the aerosol form. The Department of Defense, Homeland Security, and Forensics could all benefit from this method and eliminate select defense positions.
- Security Bioparticle recognition is noninvasive and can positively identify a person.
 It is more advanced than terrorist watch lists and makes the identification process more accurate. It is also more difficult to forge bioparticles than it is to forge one's identification. There are societal and legal barriers to mass DNA fingerprinting screens.

Inventors

Mark A. Hayes Associate Professor Arizona State University

Thomas J. Taylor Associate Professor Arizona State University

Karl Booksh Professor University of Delaware

Neal Woodbury Professor Biodesign Institute Arizona State University

Pierre Herckes Assistant Professor Arizona State University

Intellectual Property Status: Patent Pending

Contact

Jack Geltosky, PhD

Senior Vice President

of Business Development, Life Sciences

Arizona Technology Enterprises, LLC (AzTE)

P: 480.884.1989

F: 480.884.1984 JGELTOSKY@AZTE.COM