



Researcher Spotlight

“ CARFS is a unique R&D environment where industry, government, and academic collaborators come together to work on the current problems and future advancements in forensic science. ”



Research Interests

- Trace detection and analysis
- Miniature (Hand-held) chemical detection instruments
- Remote chemical sensing devices
- Chemical sorption devices (materials, swabs, active collection)
- Advanced chemical sensors
- GC-MS on a chip (components and integrated module/package)
- Component attribution and material Identification
- Compositional analysis
- 3D printing (multi-material)

Capabilities

- Instrument and sensor device design
- Chip fabrication and packaging materials and methods
- Prototype sensor development
- Device test, development, and chemical testing
- SEM imaging, morphology, and composition analysis
- VOC collection and analysis
- Liquid, solid, and vapor sample identification
- Multi-material 3D printing
- Prototype component design and fabrication
- Materials formulation and processing

Advanced Instrumentation

- SEM-EDS, XRF
- ICP-MS (liquid)
- LA ICP-MS
- LIBS
- GC-MS (Liquid, Thermal desorption, Vapor)
- TD-IMS

Patrick Roman, PhD
Associate Professor
Florida International University

patroman@fiu.edu