



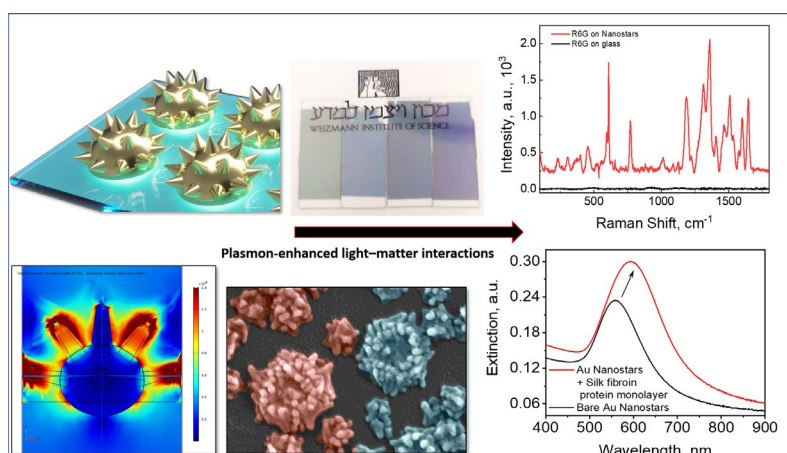
# Reusable Gold Nanostars Substrates for Signal Amplification for Diagnostics



Diagnostics

Reference Number: **2127** \ Principal Investigators: **Prof. Shimanovich Ulyana** \ Patent Status: **US-2024-0402165-A1**

Numerous spectroscopic techniques rely on signal enhancement from nanoparticles linked to analyte molecules. However, existing surface-enhanced spectroscopies (SES) typically use nanoparticles dispersed in solution, making them unsuitable for solid substrates. This technology introduces spiked gold nanostructures ("nanostars") embedded directly on solid-state surfaces to enhance spectroscopic signal detection. Unlike traditional solution-based SES methods, these stable and reusable nanostars enable high-sensitivity signal amplification directly on solid substrates.



## APPLICATIONS

- Signal amplification for spectroscopic techniques – SERS, SECD, LSPR, SEFS
- Medical and chemical diagnostics and treatment
- Catalytic processes
- Optical filters
- Integration into microfluidic devices

## STAGE OF DEVELOPMENT

The technology has been successfully demonstrated for enhancing spectroscopic signals, including SERS, SECD, and LSPR, using small active molecules.

## DIFFERENTIATION



Stable &  
Reusable



High  
Scalability



Enhanced  
Signal/Noise



Simple  
fabrication



Compatible with  
lithographic  
techniques

