



Plasmonic Nanoparticle-Based Colorimetric Stress Memory Sensor

Tech ID: 24314 / UC Case 2014-712-0

IMAGES



BRIEF DESCRIPTION

Background: Not only does Gold possess strong size and shape, but may be used to enhance color-based biosensor applications. Colloidal nanoparticles of Gold exhibit localized surface plasmon resonance, resulting in significant scattering and absorption in the visible spectrum.

Description:UCR researchers have developed a film that memorizes stress it experiences through color change. The film captures and records the distribution and amount of pressure between two contacting surfaces by outputting color information. The novel polymer film contains embedded Gold nanoparticles creating a color based on plasmonic interactions. As pressure is applied, the particle spacing changes and in turn changes the color.

ADVANTAGES

- ☐ Higher spectrum of colors, higher resolution and contrast than commercially available pressure-sensor systems
- ☐ Reveals pressure distribution over very complex surfaces

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OTHER INFORMATION

KEYWORDS

Gold nanoparticles, plasmon coupling,
disassembly, stress, colorimetric
sensor, polymer deformation

CATEGORIZED AS

- ▶ **Optics and Photonics**
 - ▶ All Optics and Photonics
- ▶ **Materials & Chemicals**
 - ▶ Chemicals
 - ▶ Nanomaterials
 - ▶ Thin Films
- ▶ **Nanotechnology**
 - ▶ Materials
- ▶ **Sensors & Instrumentation**
 - ▶ Physical Measurement

RELATED CASES

2014-712-0

SUGGESTED USES

- ☐ Safety devices revealing stress distribution
- ☐ Stress sensors for athletic equipment

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,113,924	10/30/2018	2014-712

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