

# Phospholipid detection by surface enhanced Raman scattering using silvered porous silicon substrates

G. Arzumanyan <sup>1</sup>

N. Doroshkevich <sup>2</sup>

K. Mamatkulov <sup>3</sup>

S. Shashkov <sup>4</sup>

K. Girel <sup>5</sup>

H. Bandarenka <sup>6</sup>

V. Borisenko <sup>7</sup>

2017 г.

1, 2, 3, 4 Foreign

5, 6, 7 Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus

**Ключевые слова:** nanoparticles, phospholipid, porous silicon, silver, surface enhanced Raman scattering

**Abstract / Аннотация:** Silver particles, predominantly with the size of 40–80 nm, were immersion deposited onto porous silicon to form substrates appropriate for the detection of organic molecules by surface-enhanced Raman scattering technique. These substrates have been demonstrated for the first time to provide detection of phospholipid molecules represented by dipalmitoylphosphatidylcholine at concentrations as low as 10<sup>-12</sup> M when a 532 nm laser wavelength is

used and 10-11 M at 633 nm wavelength. Label-free detection is realized at these conditions.

**Источник публикации:** G. Arzumanyan, N. Doroshkevich, K. Mamatkulov, S. Shashkov, K. Girel, H. Bandarenka, V. Borisenko, Phospholipid detection by surface enhanced Raman scattering using silvered porous silicon substrates, *Phys. Status Solidi A* 214(8), 1600915 (6 pages) (2017). – DOI 10.1002/pssa.201600915

**Full text/Полный текст:**

[https:// onlinelibrary.wiley.com/doi/10.1002/pssa.201600915/full](https://onlinelibrary.wiley.com/doi/10.1002/pssa.201600915/full)