Bi-metallic nanosensor chips for surface plasmon resonance systems

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PROJECT DESCRIPTION:

Bimetallic sliver/gold sensor chips are attractive since they combine the advantages of both sliver and gold layers. Bimetallic nanosensor chips with high sensitivity were developed by improving surface quality of glass slides and optimizing film thickness. Higher sensitivity and narrower response curves for SPR biosensors are achieved by improving surface quality of glass slides. Sensitivity performance of the bimetallic sensor chips degrades with the aging time.

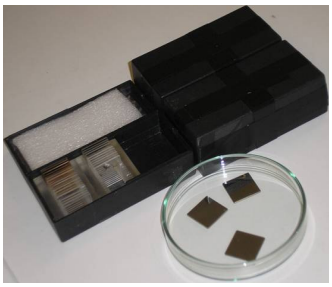

Figure 1. Nanosensor chips .

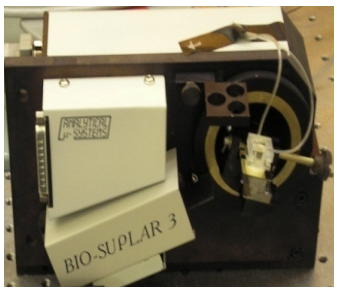

Figure 2. A surface plasmon resonance (SPR) system.

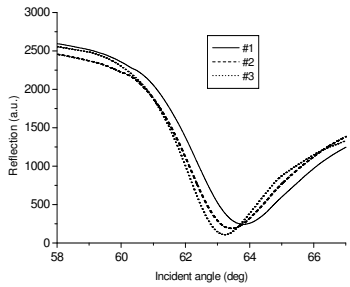

Figure 3. SPR curves for metal coated glass slides with different surface roughness in water.

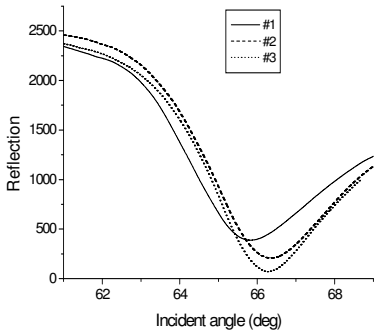

Figure 4. SPR curves for gold coated glass slides with different surface roughness in ethanol.

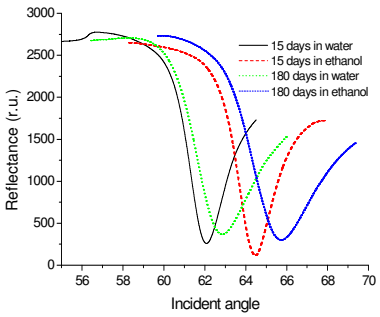

Figure 5. Aging effect on response curves of the bimetallic sensor chips.

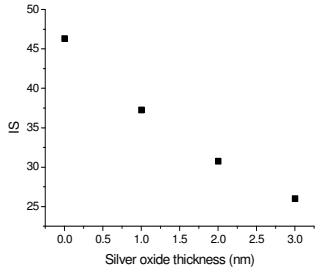

Figure 6. Effect of silver oxide thickness on intrinsic sensitivity.

Selected publications in the area:

[1] X. Chen, K. Jiang, “Effect of aging on optical properties of bimetallic sensor chips”, Optics Express, 2010, 18, 1105-1112.

[2] X. Chen, M. Pan, K. Jiang, “Sensitivity enhancement of SPR biosensor by improving surface quality of glass slides”, Microelectron. Eng., 2010, 87, 790-792.