Abstracts

A novel gold-coated multimode fiber sensor

E. Fontana. "A novel gold-coated multimode fiber sensor." 2002 Transactions on Microwave Theory and Techniques 50.1 (Jan. 2002, Part I [T-MTT] (Mini-Special Issue on 1999 International Microwave and Optoelectronics Conference (IMOC'99))): 82-87.

A novel optical-fiber sensor is proposed for use in chemical analysis. The sensor probe is made of a gold-coated multimode optical fiber, configured to exhibit surface plasmon resonance (SPR) when immersed in a wet environment. The proposed detection strategy comprises measurement of the image pattern irradiated by the fiber under monochromatic illumination. A theoretical model is proposed to determine device performance. From computer simulations, it is shown that the proposed configuration and detection strategy allows reaching a 30-fold enhancement in sensitivity relative to that obtained in previous SPR-based versions of the device.

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