

DETECTION OF VOLATILE ORGANIC COMPOUNDS BASED ON OPTICAL FIBRE USING NANOSTRUCTURED FILMS

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Abstract- An optical fibre sensor for detection of volatile organic compounds (VOCs) has been implemented. This device is based on a vapochromic material presented in the form of bright red powders, which suffers reversible changes in its optical properties when exposed to some organic vapours. The sensor head consists of a nano interferometer doped with the vapochromic material, built onto a cleaved ended multimode optical fibre by using the Layer by Layer Electrostatic Self Assembly Method (LbL). A reflection scheme was used, so the intensity modulated reflected signal is registered in order to study its response. Changes up to 3 dB in the reflected optical power were measured.