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[\[PDF \(2257K\)\]](#) [\[References\]](#)**A Highly Selective Fluorescent Sensor for Cu²⁺ Based on a Covalently Immobilized Naphthalimide Derivative**[Xu-Hua ZHAO^{1\)}](#), [Qiu-Juan MA^{1\)2\)}](#), [Xiao-Bing ZHANG^{1\)}](#), [Bo HUANG^{1\)}](#), [Qin JIANG^{1\)}](#), [Jing ZHANG^{1\)}](#), [Guo-Li SHEN^{1\)}](#) and [Ru-Qin YU^{1\)}](#)*1) State Key Laboratory of Chemo/Biosensing and Chemometrics, College of Chemistry and Chemical Engineering, Hunan University**2) College of Pharmacology, Henan University of Traditional Chinese Medicine***(Received December 31, 2009)****(Accepted March 4, 2010)**

In this paper, we describe the fabrication and analytical characteristics of fluorescence-based copper ion-sensing glass slides. To construct the sensor, a naphthalimide derivative *N*-allyl-4-(bis(pyridin-2-ylmethyl)amino)ethylamino-1,8-naphthalimide (**1**) with a terminal double bond was synthesized and photo-copolymerized with 2-hydroxyethyl methacrylate (HEMA) on a glass surface treated with a silanizing agent. In the presence of Cu²⁺ at pH 7.24, the resulting optical sensor undergoes fluorescence quenching. Thus, the proposed sensor with visible excitation can behave as a fluorescent sensor for the selective detection of Cu²⁺. In addition, the sensor exhibits satisfactory selectivity, reproducibility and response time. The sensing membrane possesses a relatively long lifetime of at least 2 months. The linear response range covers a concentration range of Cu²⁺ from 4.0 × 10⁻⁷ to 6.0 × 10⁻⁴ mol/L and the detection limit is 2.0 × 10⁻⁷ mol/L. The determination of Cu²⁺ in river water samples shows satisfactory results.

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