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# GaN Ultrathin Membrane for SERS Detection of Rhodamine B

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## Abstract

In this paper we demonstrate the fabrication of a SERS detector based on GaN ultrathin membrane. The GaN membranes are elaborated by the so-called Surface Charge Lithography approach. The obtained membranes are functionalized by 20 nm Au nanodots and characterized by different tools in order to demonstrate the material quality and sensitivity enhancement for Rhodamine B detection in the micromolar range.

*Keywords: single-crystal gallium nitride membranes, gallium nitride membranes, membranes, SERS detectors, Rhodamine B sensors, surface charge lithography, Au nanodots*

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