

Abstract Submitted
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Scanning near field microwave microscopy based on an active resonator¹ NASER QURESHI, OLEG KOLOKOLTSEV, CCADET, Universidad Nacional Autonoma de Mexico, CESAR LEONARDO ORDONEZ-ROMERO, Instituto de Fisica, Universidad Nacional Autónoma de Mexico — A large number of recent implementations of near field scanning microwave microscopy (NFSMM) have been based on the perturbation of a resonant cavity connected to a sharp scanning probe. In this work we present results from an alternative approach: the perturbation of a microwave source connected to a scanning tip. Based on a yttrium iron garnet (YIG) cavity ring resonator this scanning probe system has a quality factor greater than 10^6 , which allows us to detect very small frequency shifts, which translates to a very high sensitivity in sample impedance measurements. Using a selection of representative semiconductor, metal and biological samples we show how this approach leads to unusually high sensitivity and spatial resolution.

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