Abstracts

Resonant slot antennas as transducers of DNA hybridization: a computational feasibility study

C. Wichaidit, J.R. Peck, Zhang Lin, R.J. Hamers, S.C. Hagness and D.W. Van Der Weide. "Resonant slot antennas as transducers of DNA hybridization: a computational feasibility study." 2001 MTT-S International Microwave Symposium Digest 01.1 (2001 Vol. I [MWSYM]): 163-166 vol.1.

We propose and simulate a resonant slot antenna for sensing DNA hybridization. Using simple geometric arguments for water displacement from a DNA-functionalized surface, we predict the changes in dielectric constants caused by hybridization. We conclude that these changes are significant enough to be detected in measurements of the resonant frequency and the surface currents of a slot antenna. These results motivate experimental work using these antennas as alternatives to current fluorescence probes.

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