

# Measuring sedimentation profiles for nanoparticle characterization through a square spiral resonator sensor

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## Abstract-

**Metallic nanoscale particles attract a growing interest in several fields, thanks to their unique bonding characteristics; applications are appearing in the literature in the fields of, for example, sensor coatings and biochemical compound detection. However, the controlled fabrication of such nanopowders is often cumbersome, especially because their characterization is normally slow, involving procedures such as electron microscopy. On the other hand, microwave sensors based on near-field effects on materials are being developed with high sensitivity and show promising characteristics. In this paper, the authors show how a microwave sensor based on a Square Spiral Resonator can be used to characterize paraffin dispersions of nanoparticles conveniently and cost-effectively.**

**Index Terms-** microwave sensors; permittivity; metallic nanoparticles; sedimentation

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