RF characteristics of SU-8 and quartz particle composite dielectric for Terahertz applications

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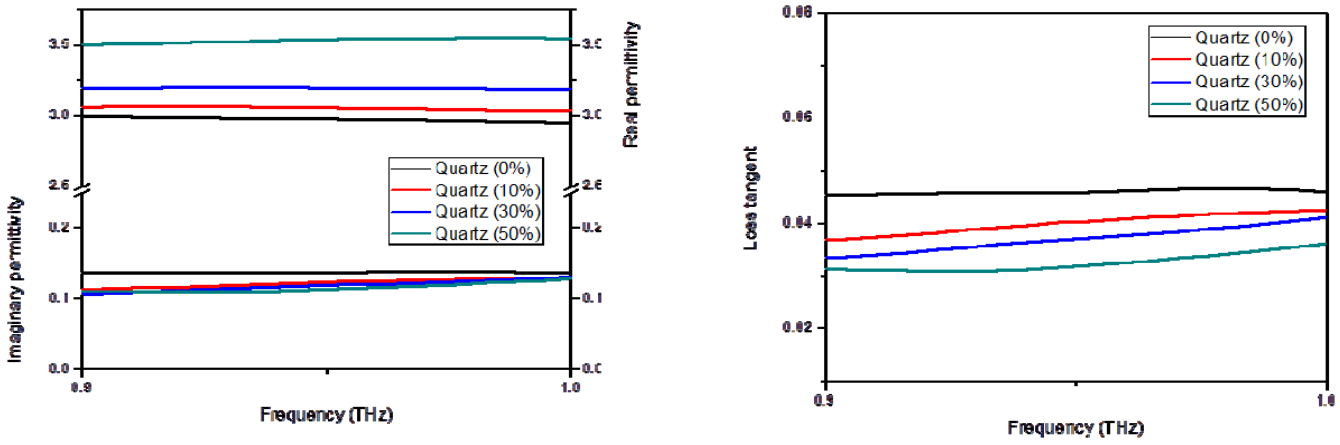
Abstract- An SU-8 and quartz particle composite dielectric layer was fabricated and measured from 0.9 to 1.0 THz. It is well known that SU-8 attenuates the signal due to its inherent high loss if used as a dielectric [1,2]. In this paper we report the possibility of lowering the loss of plain SU-8 by adding quartz particles with a diameter of 1 μm for high packing density. The real permittivity of the fabricated dielectric layer increases and loss tangent decreases according to the increase of quartz particles mass fraction in the range from 0.9 to 1.0 THz. Higher quartz particle mass fraction has a great potential to lower the losses of plain SU-8 for Terahertz applications.



(a) (b)

Figure 1: (a) measured permittivity. (b) measured loss tangent.

References

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