

SOIL MOISTURE SENSORS BASED ON METAMATERIALS

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Abstract

In this paper, a novel compact microstrip sensors based on metamaterials were proposed, that operate principle is based on the change of the resonant frequency method. The considered microstrip sensors consist of microstrip line which is loaded on its sides by two identical metamaterials unit cells based on split ring resonators. The presented configurations act like band-stop filters, whose resonant frequency depends on soil moisture content. In this paper, the influence of the soil moisture on the proposed sensors was investigated. Small dimensions, good sensibility and compatibility with planar fabrication technology are making this sensor suitable for application in wireless sensor networks.

Keywords: Microstrip sensor, Metamaterials, Soil moisture

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