

# Resonance modes of periodically structuralized microwave magnetic elements

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Here we consider a flower-like structure of a resonator consisting of six elliptical elements, referred to as petals, made from a magnetic material. The petals are positioned with their centers at the corners of a regular hexagon. Using numerical simulations (CST Studio) we examine the effect of different radial orientation of petals. We study resonance modes with a specific distribution of the electromagnetic field within the resonator as well as the effect of the rotation of petals on the field distribution. The mode character is crucial to understand the behavior of the frequency spectrum. E.g., the rotation of petals influences significantly the frequency of the lowest mode only, while the other frequencies are almost unchanged and this effect is directly related to the profile of modes. The system studied is a promising candidate for a component of an integrated detection system for applications in magnetic resonance spectroscopy and related detection techniques.

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