

# Design Of A Spiral UWB Antenna Through Evolutionary Optimization Strategies For The 6-18 Ghz Band

D. Lo Turco

## Abstract

Spiral antennas have numerous applications due to their wide bandwidth and circular polarization. Unfortunately, unless integrated with differential circuits, they generally suffer from two main disadvantages. First of all, their input impedance is not 50 ohms, and thus a wideband balun for impedance matching is required. Second, the central feeding leads to high fabrication cost, especially at high frequencies and makes planar array design more of a challenge.

Coplanar waveguide (CPW) is desirable due to its high efficiency at millimeter-wave frequencies and also its unbalanced and uniplanar structure. This project aims at synthesizing a CPW-fed spiral antenna through a Particle Swarm Optimizer (PSO), in order to obtain an UWB behavior inside the band between 6 and 18 GHz.

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Supervisors: Prof. Andrea Massa, Dr. Paolo Rocca, Dr. Marco Salucci.*