

P097

Tu 17:00 - 18:30

MWCNTs bundles-based RF-device and its equivalent electrical circuit through measurements fit.

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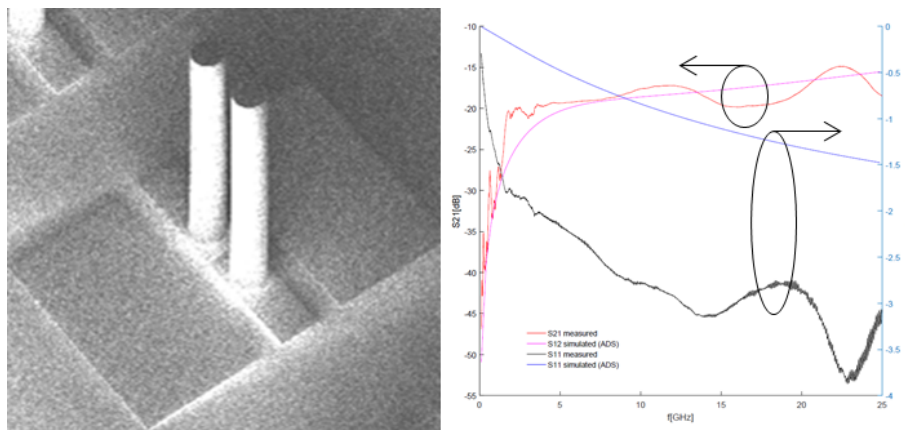
To design an equivalent electric model through the fit of measured scattering parameters, we simulated, fabricated and measured coplanar waveguide (CPW) based RF-devices integrating two large VAMWCNTs bundles grown with thermally enhanced chemical vapor deposition (TECVD) process at 700°C. In our knowledge, this full process was never implemented for MWCNTs bundles of this size.

The implemented device consists of a CPW integrating two large VAMWCNTs bundles with a diameter of 100µm and a length of about 700µm as depicted in Figure 1.

The measurements were performed with a Vector Network Analyzer (VNA) Rhode & amp; amp; Schwarz ZVA50 over the frequency range 100MHz to 25GHz.

The simulation of the circuit was implemented using the ADS software (from Keysight), with the aim to find an effective equivalent circuit for the large MWCNTs bundles. We took advantage of the existing literature and particularly of the feedback from the characterizations we carried out on the media.

Promising results illustrated in Figure 1 show a satisfactory similarity between the behavior of the proposed model and the measurements.



Fabricated RF-device integrating two VAMWCTs bundles and comparison between simulations and measurements.