



## Impedance measurements on a layered object – some surprising phenomena

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We have used a numerical model to analyze impedance measurements on a layered material. This involves impedance measurements with a two-electrode system and transfer impedance measurements with a four-electrode system. The results indicate that sub-volumes in a material can contribute to the measured impedance in a non-intuitive way. This is particularly the case for the four-electrode system, where e.g. positive phase angle can be measured for a capacitive system or apparent negative resistance can be measured. One of the reasons for such behavior is that when measuring from the top surface of a layered material, the different layers will partly be connected in series (for currents flowing in the vertical direction) and partly in parallel (for currents flowing in the horizontal direction). Several examples will be given in the talk.