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Impedance Spectroscopy II

Impedance Spectroscopy is a powerful method to analyze all kinds of solid-solid or solid-liquid interfaces. The basic equations and correlations will be presented in the talk of Eva Sapper. Therefore this talk will be constitutive and mainly concerned to the data analysis using Complex Nonlinear Least Squares (CNLS) fitting. To access this field the frequency behavior of simple lumped and ideal circuit elements combined with simulation will be shown first. Afterwards the influences introduced by real elements are discussed e.g. an actual resistor always exhibits some capacitance and inductance. Besides this it has to be taken into account that the attributes of the circuit can be distributed continuously throughout the material of the circuit. These inhomogeneities can be summarized as constant phase elements to fit experimental data. In addition measurements methods and industrial applications will be presented.