

## Talk announcement

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## Circuit Modelling

In this talk we give an overview of the Modified Nodal Analysis Method and its discretization by focusing on simpler networks only consisting of resistors, capacitors, inductors, voltage sources and current sources, so-called RLC-networks. We start by describing electrical circuits and their components as well as the relevant physical laws. To this end, we first describe the topology of the electrical circuit mathematically and then derive the Modified Nodal Analysis formulation. The structure of the resulting system is a Differential Algebraic Equation, which we continue to analyze further. These results are then applied to the Modified Nodal Analysis formulation. Finally, we discuss the discretization of such systems using Multistep Methods, examine their convergence rates, and provide illustrative examples to support the theoretical results.