Existence and uniqueness of solution for multidimensional parabolic PDAEs arising in semiconductor modeling

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Abstract

We consider a linear RLC network, modeled by differential-algebraic equations, containing distributed semiconductor devices, modeled by multi-dimensional parabolic-elliptic equations. With appropriate coupling conditions, we obtain a system of multi-dimensional partial differential-algebraic equations. For the resulting system, we prove an existence and uniqueness result, and study the asymptotic behavior of the solutions.

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