

## Thermal Modelling and Experimental Comparison for a Moving Pantograph Strip

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**Abstract :** This paper proposes a thermal study of the catenary/pantograph interface for a train in motion. A 2.5D complex model of the pantograph strip has been defined and created by a coupling between a 1D and a 2D model. Experimental and simulation results are presented and with a comparison allow validating the 2.5D model. Some physical phenomena are described and presented with the help of the model such as the stagger motion thermal effect, particular heats and the effect of the material characteristics. Finally it is possible to predict the critical thermal configuration during a train trip.

**Keywords :** electro-thermal studies, mathematical optimizations, multi-physical approach, numerical model, pantograph strip wear

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