Contributions regarding the testing and analysis with finite elements of the brake pads made of composite material

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Abstract.
The automotive industry continues to be one of the most dynamic and innovative. We are currently witnessing a revolution in propulsion systems that are becoming increasingly complex and must meet a number of extremely stringent environmental pollution requirements. On the other hand, one of the systems that remains unchanged is the braking system that has been proving its efficiency for a very long time but with gradual continuous improvements. The presented work is based on tests and experiments performed in collaboration with the manufacturer Fermit S.A. which is one of the most experienced and long-standing actors in the automotive industry in Romania. They produce a wide range of brake pads for the automotive, heavy duty and railway industries. Starting from the experiments that offer the input data in the modeling and simulation activity, the paper presents the analysis of the behavior of a braking plate produced by Fermit S.A. Based on the geometry provided by the manufacturer, the properties of the composite material that forms the basis of the braking element and the experimental data that are presented, an analysis is made with finite elements in which to study, analyze and interpret data such as displacements and stress states that occur in the structure formed by the composite material and the metal support plate on which it is deposited.