

# **Design and numerical evaluation of an airbag-jacket for motorcyclists**

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## **Abstract**

The need of passive safety devices, able to reduce the accidents and the severity of injuries suffered by motorcyclist, distinctly arises from data on accident statistics.

In this paper, the effectiveness of an airbag device fitted in the biker's garments has been verified through various numerical simulations. Two simple test conditions were defined, in order to investigate the performance of the device both for back and front impacts, and simulated at various impact speeds. With the aim of providing more information about the actual capability of the airbag to reduce the severity of the injuries, one of accident scenario described by ISO 13232:2005 has been also investigated, checking the real effectiveness of the airbag strap-based firing system too.

Confrontation of injury indexes resulting from simulation with and without airbag made possible a realistic evaluation of the harm reduction induced by the airbag presence.