

**Novel method to ensure the reliability of the DC motors controlled by an IGBT / PWM converter** *by Bernardo Sainz, David Leal, Eric Martinez*

**Abstract** - For decades, the DC electric motor has been an indispensable element in the transformation of paper, resulting in an important installed base, and therefore a significant non-negligible fixed asset. Recent advances in drive systems allow the use of PWM IGBT converters for DC motors, that had typically been used in AC motor control. However, IGBT /PWM inverters introduce effects such as voltage spikes caused by sudden changes and common mode voltages. These effects can cause accelerated deterioration of the insulation and bearings of the existing motor. This article presents a novel filter design that achieves optimal performance by mitigating these effects, presenting advantages such as size, economy, efficiency, versatility, modularity and scalability versus traditional RLC filters.