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DEVELOPMENT OF SNO_2 BASED VARISTORS – ELECTRICAL BEHAVIOR AND PULSE DEGRADATION COMPARATIVELY TO ZNO VARISTORS

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ABSTRACT

This work presents the most relevant aspects of the SnO_2 based varistors technology and a comparative study of its non linear behavior in relation to ZnO (modified Matsuoka system) varistors. Electrical performance at low and high impulse currents is presented. The SnO_2 system had shown better performance in important parameters when compared to SnO_2 system such as higher non linear coefficients in the entire range of measured currents and much higher electrical breakdown field. It was also evaluated the degradation both technologies of varistors subjected to lightning current pulses (8/20 μs) resulting a more severe degradation in the ZnO varistors. The improved behavior of the SnO_2 system forms the basis to a forthcoming design of surge arresters and surge protective devices based on such technology.

Index Terms—varistors, protection, technology, ZnO, SnO_2, energy, degradation, surge arresters.