

# **THE INFLUENCE OF THE UPWARD LEADER ON LIGHTNING INDUCED VOLTAGES**

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**Abstract - The return stroke is by far the most important phase of lightning concerning the problem of electromagnetic coupling and induced voltages. The time variation of the electromagnetic field associated to this stage can frequently induce voltages higher than the BIL of distribution lines. On the other hand, the effect of the upward leader has usually been neglected in the analysis of the phenomenon.**

**This paper presents a simplified model for the analysis of the influence of the upward leader on lightning induced voltages on overhead lines. The simulations presented show that in some circumstances these voltages can exhibit a bipolar characteristic. The influences of various parameters that affect the induced voltages are also discussed.**