

Influence Analysis of Transmission Lines Insulator on the Conductor Ice-shedding

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Abstract

Conductor strenuous exercise will be caused by the ice-shedding. It is easy to cause the occurrence of electrical or mechanical accident of transmission line. Therefore, Conductor-insulator finite element model has been established through the ANSYS, and it is the analysis of the dynamic characteristics for the wire type, material properties and the length of the insulator string under different ice shedding. The influence of insulator has been separately analyzed from the jump height, unbalanced tension etc. for the conductor iceshedding. The results showed that: It I type insulator on ice-shedding unbalanced tension impact is about 0.9 times smaller than the V type insulator. It is not significant for ice-shedding unbalanced tension effects about the composite and ceramics materials. The ice-shedding jump height will be unchanged for the V type or I type insulator with the length increase of insulator string, but iceshedding unbalanced tension will be decreased. The related results provide a reference for the subsequent study on conductor ice-shedding and lines structure design.



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Figure 1: Ice-shedding Span Location of ConductorsFigure 2: The jumping height of ice-shedding time-history curveFigure 3: The longitudinal unbalanced tension time-history curve



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