Calculation of the channel discharge function for the generalized lightning traveling current source return stroke model

Dragan M. Pavlović[2], Gradimir V. Milovanović[1], and Jovan M. Cvetić[2]

[1] Serbian Academy of Sciences and Arts, Kneza Mihaila 36, 11000 Belgrade, Serbia
gvm@mi.sanu.ac.rs

[2] Faculty of electrical engineering, University of Belgrade, Bulevar Kralja Aleksandra 73
11000 Belgrade, Serbia
{dragan.lab3, cvetic-j}@etf.bg.ac.rs

Abstract

The generalized lightning traveling current source return stroke model(also called GTCS model) represents generalization of all engineering lightning return stroke models that is generalization of the transmission line (TL models, also called current propagation models) and traveling current source (TCS models, also known as current generation models) models. Within the GTCS model the channel discharge function was introduced and calculated for special cases. We applied new numerical method for the calculation of the channel discharge function. The proposed method is highly accurate, extremely efficient and relatively simple.

Keywords: return strokes, GTCS model, channel discharge function, Volterra Integral equation,quadrature methods

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