

Novel Generic Analytical Model of Fractance Response

Rawid Banchuin¹ and Roungsan Chaisricharoen², Non-members

ABSTRACT

Fractance is often cited in various engineering disciplines for example, analog circuits and systems, biomedical engineering, control engineering and electronic engineering etc. In this research, a novel generic analytical model of the voltage response of fractance in time domain has been proposed. This model composes of two parts for fractance with order ranges from 0 to 1 and larger than 1 respectively. With this model, the asymptotic and transient voltage responses of fractance can also be determined. Unlike the results of the previous works which are applicable only to fractance with certain orders under certain excitations, this model can be applied to fractance of arbitrary order under arbitrary type of periodic excitation. Moreover, it has been shown that the proposed model is in a realistic format. So, this model has been found to be beneficial to various fractance involved engineering disciplines stated above.