

Implementation of the Recursive Formula for Evaluation of the Strength of Daniels' Bundle

Authors : Vaclav Sadilek, Miroslav Vorechovsky

Abstract : The paper deals with the classical fiber bundle model of equal load sharing, sometimes referred to as the Daniels' bundle or the democratic bundle. Daniels formulated a multidimensional integral and also a recursive formula for evaluation of the strength cumulative distribution function. This paper describes three algorithms for evaluation of the recursive formula and also their implementations with source codes in high-level programming language Python. A comparison of the algorithms are provided with respect to execution time. Analysis of orders of magnitudes of addends in the recursion is also provided.

Keywords : equal load sharing, mpmath, python, strength of Daniels' bundle

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