ALGORITHM 680

Evaluation of the Complex Error Function

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ALGORITHM

Given a complex number z , in the first quadrant of the complex plane, $WOFZ(z)$ computes the value of the Faddeeva-function $w(z) = \exp(-z^2) \cdot \operatorname{erfc}(-iz)$ with an accuracy of 14 significant digits. While the body of the algorithm is the same as that of Algorithm 363 ([1, 2]), the initialization part is largely changed so as to improve both the accuracy and the speed of the algorithm. The major distinction between Algorithm 363 and Algorithm 680 lies initially in the choice of the variable QRHO and in the fact that NU isn't a constant if (QRHO.GE.1.0), but decreases with increasing $|z|$. Secondly, in the neighborhood of the origin, a different approximation for the Faddeeva function is used. A full description of the differences between this algorithm and Algorithm 363 is given in [3].

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