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T-Inclusion Regions for the Effective Transport Coefficients of Two–Phase Media

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By starting from several truncated power series we derive by means of a special T-multipoint continued fraction technique the general T-inclusion regions estimating in a complex domain the effective transport coefficients Q of the two-phase media such as dielectric or diffusion constants, thermal or electrical conductivities, magnetic permeabilities. The incorporation into the T-inclusion regions of the power series expanded at infinity have not been investigated in literature. Hence the T-inclusion relations derived are new. They provide the best estimates of Q with respect to the given input data. In special cases they reduce to the well known complex bounds reported in literature. Numerical examples exhibiting the usefulness of the results obtained are also provided.

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