Abstracts

On the Use of Davidenko's Method in Complex Root Search (Short Papers)

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Davidenko's method has proved to be a powerful technique for solving a system of n-coupled nonlinear algebraic equations. It employs a Newton's method reduction to produce n-coupled first-order differential equations in a dummy variable. The advantage it offers over Newton's method and other traditional methods such as Muller's method is that it relaxes the restrictions that the initial guess has to be very close to the solution. Two examples involving the search for complex roots are presented. Davidenko's method seems to converge to the roots for all the arbitrary initial guesses considered while Muller's method appears to fail for some cases. This suggests the use of Davidenko's method as an alternative to Muller's method when the later fails to converge or is slowly convergent.

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