









图1 格式(B)得到的各个时刻的波形

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### The High-Order Compact Difference Schemes for the Rod Equation

WANG Lan

(College of Mathematics and Informatics, Jiangxi Normal University, Nanchang Jiangxi 330022, China)

**Abstract:** Three compact difference schemes with small stencil, high-order for the rod equation are proposed. These scheme are based on the idea that the combination of spatial derivative at different nodes equaling to the combination of functions or the original equation itself. These schemes are unconditionally stable by theoretical analysis and numerical experiments. They are of high accuracy.

**Key words:** rod equation; high-order compact difference scheme; node stencil

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