

## Expansion of Lie Algebra and Its Application

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**Abstract:** Firstly we expand a finite-dimensional Lie algebra into a higher-dimensional one. By making use of the later and its corresponding loop algebra, the expanding integrable model of the multi-component NLS-mKdV hierarchy is worked out.

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**Key words:** loop algebra, zero curvature equation, expanding integrable model, multi-component NLS-mKdV hierarchy

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