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Numerical solutions of highly oscillatory integrals. (English) Zbl 1139.65019
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Summary: An application of *J.-H. He*'s homotopy perturbation method (HPM) [ibid. 135, No. 1, 73–79 (2003; Zbl 1030.34013)] is proposed to numerical solution of highly oscillatory integrals. To apply the HPM to the oscillatory integrals, we assume that the oscillatory function has not critical point at the endpoints of integration region. The results reveal that the method is very effective and simple.

MSC:

65D32 Numerical quadrature and cubature formulas
41A55 Approximate quadratures

Keywords:

oscillatory integrals; He's homotopy perturbation method; numerical examples

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