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Education

● Doctor’s and Master’s Degree in Computational Mathematics, 09/2007 — 11/2012, School of Mathematics and Statistics, Central South University

Supervisor: Professor Shuhuang Xiang

Professional affiliations

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● ….

Research interests

● Numerical methods for highly oscillatory problems:

Highly oscillatory integrals in one or more dimensions, their theory, asymptotic expansion and quadrature methods;

Highly oscillatory integral equations and their numerical solution;

Highly oscillatory ODE, PDE, and their numerical solution

● Numerical methods for special function

Selected publications (first author):

* Hongchao Kang, [Efficient calculation and asymptotic expansions of many different oscillatory infinite integrals](http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=8CFvS7VFpKohhTfvqSf&page=1&doc=1), APPLIED MATHEMATICS AND COMPUTATION, Volume  346, pp. 305-318 , 2019
* Hongchao Kang, [Numerical integration of oscillatory Airy integrals with singularities on an infinite interval](http://apps.webofknowledge.com/full_record.do?product=UA&search_mode=GeneralSearch&qid=1&SID=8CFvS7VFpKohhTfvqSf&page=1&doc=2), JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS,  Volume  333, pp. 314-326,   2018
* Hongchao Kang and Junjie Ma, Quadrature rules and asymptotic expansions for two classes of oscillatory Bessel integrals with singularities of algebraic or logarithmic type, APPLIED NUMERICAL MATHEMATICS , Volume 118 , pp. 277-291, 2017

● Hongchao Kang and Chen Ling, [Computation of integrals with oscillatory singular factors of algebraic and logarithmic type](http://www.sciencedirect.com/science/article/pii/S0377042715000679), Journal of Computational and Applied Mathematics, Volume 285, pp. 72-85, 2015.

● Hongchao Kang and Congpei An, Differentiation formulas of some hypergeometric functions with respect to all parameters, Applied Mathematics and Computation, Volume 258, pp. 454-464, 2015.

● Hongchao Kang, Shuhuang Xiang and Guo He, Computation of integrals with oscillatory

and singular integrands using Chebyshev expansions, Journal of Computational and Applied Mathematics, Volume 242, pp. 141-156 , 2013.

* Hongchao Kang and Shuhuang Xiang, Efficient quadrature of highly oscillatory integrals

with algebraic singularities, Journal of Computational and Applied Mathematics, Volume

237, Issue 1, pp. 576-588, 2013.

* Hongchao Kang and Shuhuang Xiang, Efficient integration for a class of highly oscillatory integrals, Applied Mathematics and Computation, Volume 218, Issue 7, pp. 3553-3564,2011.
* Hongchao Kang and Shuhuang Xiang, On the calculation of highly oscillatory integrals

with an algebraic singularity, Applied Mathematics and Computation, Volume 217, Issue 8,

pp. 3890-3897, 2010.

Preprints (first author or corresponding author):

* Hongchao Kang and Congpei An, Error Bounds for Numerical Integration of Oscillatory

Bessel Transforms with Algebraic or Logarithmic Singularities

* Hongchao Kang and Hong Wang, Asymptotic Analysis and Numerical methods for Oscillatory Infinite Generalized Bessel Transforms with an Irregular Oscillator
* Hong Wang and Hongchao Kang, Construction of Numerical methods for Two Classes of Singular Oscillatory Bessel Transforms and Their Error Analysis
* Hongchao Kang and Junjie Ma, Frequency-explicit convergence analysis of collocation methods for highly oscillatory Volterra integral equations with weak singularities
* Hongchao Kang and Hong Wang, Complex Integration Method for Computing Many Different Oscillatory Bessel Transforms using Confluent Hypergeometric Function