

Viva Lobatto! Approximating highly-oscillatory integrals is easy...

Arieh Iserles

Department of Mathematics & Theoretical Physics

University of Cambridge

Silver Street

Cambridge CB3 9EW

UNITED KINGDOM

Abstract

Using Lie-group methods in the integration of highly-oscillatory differential equations requires effective numerical integration of rapidly-oscillating functions. Although quadrature methods for such functions exist, they are poorly understood. In this talk we subject a number of such methods to detailed analysis, showing how a judicious choice of quadrature points makes high oscillation into a true friend of a numerical analyst.