A. Karabegov

Title: The inverse problem of the stationary phase method

Abstract: We consider the asymptotic expansion of an oscillatory integral depending on a small parameter h whose phase function has a nondegenerate critical point x with zero critical value as an h-formal distribution supported at x which is applied to the amplitude supported near x. We describe all such formal distributions and show how to recover the full jet of the phase function at x from the corresponding distribution.