

ASYMPTOTIC EXPANSION OF DOUBLE OSCILLATORY  
INTEGRALS: CONTRIBUTION OF NON STATIONARY CRITICAL  
POINTS OF THE SECOND KIND.

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## Abstract

In in this paper, we show that the contribution of a non-stationary critical point of the second kind to the asymptotic expansion of a double oscillatory integral is governed by “the order of contact” between the boundary of the domain of integration and the level curve of the phase through the critical point. Complete asymptotic expansions are derived and the coefficient of the leading term is computed in terms of the original data of the problem. This problem was previously studied by several authors, but only in the special case when the order of contact is minimal.

**Keywords:** Asymptotic expansion, oscillatory integral, critical point of the second kind

## References

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