The Stokes phenomenon for certain partial differential equations

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We consider the title Stokes phenomenon for the solutions of the 1-dimensional complex heat equation and its generalizations.

We focus our attention to find the Stokes lines, the anti-Stokes lines and jumps across these Stokes lines. The important point to note here is that we also show how to describe jumps in terms of hyperfunctions for mentioned equations in cases, where the Cauchy data are holomorphic functions with finitely many singular or branching points.

We emphasize that our fundamental tool which allows us to prove most of the main theorems is the theory of Borel summability.

Joint work with Sławomir Michalik (Cardinal Stefan Wyszynski University, Poland).

References

[1] S. Michalik, B. Podhajecka, *The Stokes phenomenon for certain partial differential equations with meromorphic initial data*, Asymptot. Anal. 99 (2016), 163–182.