

This is a review text file submitted electronically to MR.

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**Author:** This line will be completed by the MR staff.

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**Primary classification:** 81R05

**Secondary classification(s):** 17B81; 35A30; 35B40; 35Q40

**Review text:**

My personal experience is that the people who are entertained by the abstract geometry of the Sophus Lie's symmetries usually do not feel too much at ease with any specific physical pragmatism, and vice versa. Not the present authors. Having reviewed the details of the Liean construction of the symmetries (and of a sample bunch of the related particular analytic and exceptional closed solutions) for the specific parabolic partial differential Schroedinger equation (mentioned in the title and, for the nonce, non-separable) they surprise us all by the climax of their story in section 4. There, they put things in a complete order (from the point of view of a quantum physicist at least) and guarantee the correct (viz, spatially vanishing) asymptotic behaviour of what they called - as if knowingly - wave functions from the very beginning. A number of benefits follows [for me, eg, the really amazing observation represented by eq. (4.16)] bringing a new insight into the old problem.