

# Efficient algorithm for summation of some slowly convergent series

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## Abstract

The  $\mathcal{Q}$  transformation, introduced recently in [1], may serve us a good tool for summation of slowly convergence series. As was shown in the mentioned paper, this approach can be easily applied to the case of generalized and basic hypergeometric series, as well as some orthogonal polynomial expansions. It is closely related to the famous Wynn's epsilon algorithm, Weniger's or Homeier's transformations, and the method introduced by Čížek, Zamastil and Skála.

However, it is difficult to use the algorithm proposed in [1]—because of its high complexity, and some other restrictions—in the case of arbitrary series. In this talk, we propose another realization of the  $\mathcal{Q}$  transformation, resulting in obtaining a simpler and faster algorithm. Notice that it can implemented in a symbolic or numerical version.

## References

- [1] P. Woźny, R. Nowak, *Method of summation of some slowly convergent series*, submitted.