

# ON BICOMPACTNESS OF THE TVDR DIFFERENCE SCHEMES

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Bicompact schemes [1] have recently been given great attention because of some advantages they offer compared to the traditional multi-point schemes. The schemes have a number of important properties, specifically:

- the stencil is simplest and does not require extension when the schemes are generalized to 3D;
  - the schemes written in divergent form and constructed through integration and interpolation within a one-cell stencil are always conservative;
  - the order of approximation does not change after transition from uniform and orthogonal meshes to nonuniform and non-orthogonal ones;
  - boundary conditions are easy to approximate (no necessity to add fictitious cells on the boundary);
  - it is not necessary to approximate the solution in terms of discontinuity like in the multi-point schemes;
- and
- it is easy to reconstruct the contour of conservatism for proving that the system is locally conservative which is important for the systems of hyperbolic equations.

The paper tries to answer the question whether the TVDR schemes [2] are bicompact or not.

## References

1. **Kalitkin, N. N.** Bicompact schemes and layered media [Text] / N. N. Kalitkin, and P. V. Koryakin // Transactions of Academy of Sciences. – 2008. – Vol. 419, No. 6. – P. 744–748.
  2. **Shestakov, A. A.** TVDR-schemes for solving radiative heat transfer [Text] // J. Issues in Atomic Science and Technology, Mathematical Modeling of Physical Processes Series. – 2019. – Is. 2. – P. 17–36.
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