

Tensor methods for multiscale problems.

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We present new approaches for solving multiscale problem with scale separation, which are based on direct solution of limiting multidimensional equations (multiscale limit problems). We show both theoretically and practically that solutions of such problems can be well-approximated in the Quantized Tensor Train (QTT) format, with complexity being logarithmic in the scale parameters. This is a joint work with C. Schwab, V. Kazeev, M. Rakhuba and A. Chertkov.