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A way to avoid the global sign problem by modifying the Lefschetz thimble method

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The numerical simulation for the lattice QCD at finite density is difficult to perform due to the sign problem. The Lefschetz thimble method is expected to give us a possible solution of the sign problem. However, this method has the global sign problem, which is cancellation between thimbles, and this problem has not been solved yet. We develop a new method to avoid the global sign problem by modifying the Lefschetz thimble method. In this talk, I introduce our method and show that it works well in toy models.

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