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Selecting optimal views for tomography reconstruction

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Previous works on reconstructing the 4D phase space using tomography require optimal selection of projection views to achieve accurate reconstruction. In 2D reconstruction, the process is straightforward, as an object can be evenly sampled by dividing the angles evenly. However, extending this concept from 2D to 4D is not intuitive. This work demonstrates that quaternions can be used to more effectively describe views in 4D and introduces the Fibonacci Flower algorithm and repulsive force algorithm to evenly space views in 4D space in order to achieve higher reconstruction accuracy.

Footnotes

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