

## Spectroscopy from canonical partition functions

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Abstract: A spectroscopical method for staggered fermions based on thermodynamical considerations is proposed. The canonical partition functions corresponding to the different quark number sectors are expressed in the low temperature limit as polynomials of the eigenvalues of the reduced fermion matrix. Taking the zero temperature limit yields the masses of the lowest states. The method is successfully applied to the Goldstone pion and both dynamical and quenched results are presented showing good agreement with that of standard spectroscopy. Though in principle the method can be used to obtain the baryon and dibaryon masses, due to their high computational costs such calculations are practically unreachable.