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## Lifshitz hyperscaling violating holography

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Holographic techniques have been instrumental in understanding certain aspects of strongly correlated systems, both in high energy and condensed matter physics. One of the most interesting applications of holography in the condensed matter setting is the study of quantum critical points exhibiting Lifshitz or hyperscaling violating Lifshitz symmetry. Although various aspects of the holographic dictionary for Lifshitz quantum critical points have been studied in special cases, the general structure for arbitrary critical exponent  $z$  has not been fully understood, while very little is known for the hyperscaling violating case.

We develop a general method for systematically constructing the holographic dictionary for both Lifshitz and hyperscaling violating Lifshitz critical points with arbitrary Lorentz violating and hyperscaling violating parameters, for a large class of bulk actions admitting such backgrounds. This allows us to determine quite generically various physical properties of the dual quantum critical points, such as the spectrum of operators, the Ward identities, and the Lifshitz conformal anomaly.

### Summary

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