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Universal features of Lifshitz Green's functions from holography

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In relativistic AdS/CFT, the functional form of scalar Green's functions is completely determined by symmetries, which thus provide only limited new information. On the other hand, in non-relativistic theories with Lifshitz scaling symmetry, the functional form of correlators is less constrained by symmetries, thus providing an opportunity for making new predictions for strongly coupled field theories using holography. We show that in theories with Lifshitz scaling, holographic retarded Green's functions show a universal exponential behavior at low frequencies, which is robust with respect to higher derivative corrections. On the field theory side, we give a simple kinematical argument as to why such behavior may arise in interacting theories with Lifshitz scaling.

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