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Operator Complexity beyond Scrambling

Friday, 17 January 2020 09:00 (1 hour)

I review aspects of quantum complexity and its holographic counterpart, applied to operator growth in chaotic systems. At time scales longer than the scrambling time, the size of the operator ceases to be a good characterization of its complexity growth. I will show that a new notion of operator complexity, called Krylov-complexity, satisfies the expected linear growth at long times as a result of the ETH hypothesis in chaotic systems. Second, a holographic understanding of this linear growth follows in a holographic setting from the properties of extremal-volume surfaces in the interior of a black hole.

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