# A device-independent approach for testing physical theories from finite data

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The device-independent approach to physics is one where conclusions are drawn directly and solely from the observed correlations between measurement outcomes. This operational approach to physics arose as a byproduct of Bell's seminal work to distinguish quantum correlations from the set of correlations allowed by a particular class of physical theories, namely, locally-causal theories. In practice, since one can only perform a nite number of experimental trials, deciding whether an empirical observation is compatible with some class of physical theories will have to be carried out via the task of hypothesis testing. In this talk, I will review some recent progress on this task based on the minimization of the Kullback-Leibler divergence and discuss how it may allow us to determine the statistical evidence against some other classes of physical theories, such as those constrained only by the non-signaling principle, and those that are constrained to produce the so-called "almost-quantum" set of correlations.