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Phase transitions in the early Universe with quantum corrections

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Current data is consistent with our Universe living in a long-lived metastable state. In the early Universe (at high Hubble rates), the decay rate can be enhanced which imposes constraints on physics beyond the standard model. Thus, precise decay rate calculations become relevant. I will show how to consistently take quantum corrections into account through two different methods. One consists of using semi-classical methods to compute the Hawking-Moss decay rate at one loop, and the other modifies the standard stochastic formalism by considering the constraint effective potential.

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