

At the Frontier of Knowledge

[Sabine Hossenfelder](#)

(Submitted on 20 Jan 2010)

At any time, there are areas of science where we are standing at the frontier of knowledge, and can wonder whether we have reached a fundamental limit to human understanding. What is ultimately possible in physics? I will argue here that it is ultimately impossible to answer this question. For this, I will first distinguish three different reasons why the possibility of progress is doubted and offer examples for these cases. Based on this, one can then identify three reasons for why progress might indeed be impossible, and finally conclude that it is impossible to decide which case we are facing.

Comments: Second prize of the 2009 FQXi essay contest "What is Ultimately Possible in Physics?"

Subjects: **Popular Physics (physics.pop-ph)**; General Relativity and Quantum Cosmology (gr-qc); History of Physics (physics.hist-ph)

Cite as: [arXiv:1001.3538v1](#) [physics.pop-ph]

Submission history

From: Sabine Hossenfelder [[view email](#)]

[v1] Wed, 20 Jan 2010 10:29:31 GMT (6kb)

[Which authors of this paper are endorsers?](#)