

Weak interactions and the curious little arrow of time



(<http://www.lse.ac.uk/philosophy/wp-content/uploads/2015/12/clock2.jpg>)

In this talk from ETH Zurich's Workshop on Time in Physics (<http://time-workshop.phys.ethz.ch/>), Bryan Roberts (<http://www.lse.ac.uk/philosophy/people/faculty/#bryan-roberts>) introduces weak interactions and argues that the laws of nature are directed in time.

A time-asymmetric law is one that distinguishes between the past and future. Some time asymmetric laws are large and obvious: we always age in the one direction in time, London real estate always go up in one direction in time, etc.

But when it comes to describing the most fundamental physical systems, like quarks and electrons, one normally presumes (in both physics and philosophy textbooks) that the laws of nature are time-symmetric. That's a curious convention, because they actually aren't. There is a small but pervasive arrow of time that comes out of the fundamental decay processes known as weak interactions. This talk aims to correct that convention. It is about the curious little arrow of time that arises out of the weak interactions.

Bryan Roberts: "Weak interactions and the curious little a..."





Bryan Roberts (<http://www.lse.ac.uk/philosophy/people/faculty/#bryan-roberts>) is an Assistant Professor in the Department of Philosophy, Logic and Scientific Method. To find out more about his work on time asymmetries see his paper, "Three merry roads to T-violation" (<http://www.sciencedirect.com/science/article/pii/S1355219814000872>), as well as this post (<http://www.soulphysics.org/2014/10/three-merry-roads-to-t-violation/>) from his blog, *Soul Physics* (<http://www.soulphysics.org/>).

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