



Quantum Optimal Control • Phila Rembold, University of Padua

Or read this article by WIRED, if you are really only here for the coin flip trick



How to win a coin toss using this simple trick from quantum science!

1. Know your Target

The probability of the coin falling on either side can be compared to a quantum system being in either of two states: We simply don't know the outcome until it is flat on the ground! **In quantum physics we usually aim for an outcome with equal probability for both states corresponding to a coin spinning on its edge.**

2. Know your Enemies

It is very hard to control the outcome of a coin flip. The trick can only work by taking into account the environment (i.e. the wind, surface properties etc.) and making a computer model of them. **In quantum physics this could for example be temperature fluctuations.**

3. Know your Power

By carefully choosing the control parameters i.e. the direction and strength with which the coin is flipped, the outcome can be manipulated. **In quantum physics this is usually the strength of a laser or depth of a trap.**

