

# Search for the Origin of the Forces

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2011 August 6

The great unsolved problem in physics, is the origin of the four forces. Indeed, we do not even know that there are only four of them!

I want to solve this problem, simply because it is so important.

To solve a problem that has so long resisted solution, requires clearing rubbish from our brains—rubbish that gets in our way, impeding progress.

My expectation is that the solution, when we find it, will be simple—that is all that gives me hope that I might be able to find it myself.

The track record is that nature is *extremely* simple, and is mathematical in its nature.

But keep in mind that we have repeatedly had to expand our mathematical repertoire in order to accommodate the observations that nature delivers us.

My suspicion is that another expansion is needed to find the forces: that is, to have the forces appear naturally and effortlessly.

Quantum mechanics provides the framework, and quantum mechanics does come extremely close to providing the forces, given our present world picture. But, it does not. *Yet!* Something more, probably something extremely simple, is needed.

Quantum mechanics does give us the complete answer for momentum (translation in the three spatial dimensions) and for angular momentum (rotation among the three spatial dimensions), but quantum mechanics gives us only a generic answer,  $H$ , for energy (translation in one time dimension).

What is the missing ingredient? (And, keep it simple, stupid!)

Could there be three time dimensions? What would link them? How would rotations manifest themselves?

Extra dimensions have been beaten to death. And four dimensions allows different topologies even in flat spacetime. Only one topology is known.

Gravitation is different from the other three forces; it associates with the time dimension, and what we call the expansion of the universe.

That last phrase is the kind of thing we want to avoid, it exhibits prejudice: words cultural, not mathematical and objective.

OK, that is the setup.

And the extremely simple *answer* is: .....