Strange Charm

Hank Green

A quark is a fundamental constituent of matter
Observed in 1968 through deep elastic scatter.
We found that protons aren't as simple as we thought.
We thought they were solid particles but they are not.

Protons in fact are made up of three separate pieces.
It just gets more confusing as our knowledge increases.
But that is what a quark is; It's a piece of a proton,
And they also make up other things including the neutron.

Oh, up, down, strange, charm, top, bottom
If you don't know what a quark is, it don't matter you still go
t 'em.
And with leptons and bosons, unless something's amiss,
They make up everything that we can see and that we know exists
.

Things made up of quarks including protons and neutrons
Are composite particles that physicists call hadrons.
Many types of hadrons are theoretically described,
But most exist for only very brief amounts of time.

Quarks have electric charge, color charge, mass and spin,
And having color charge means they exist solely inside
Of other kinds of particles and cannot exist alone.
Which is why quarks have never been studied on their own.

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Quarks can join together in two different ways,
Baryons and Mesons, but most instantly decay.
If a particle has three quarks, then it's a baryon,
And if there's one quark and an anti-quark, then it is a meson.

These tiny bits of matter are a part of almost everything
And there is no unified theory to make it less confusing.
But the fact that we've identified that they exist at all
Is so god damn remarkable that I just sit in awe.

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