The Large Hadron Rap

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http://www.youtube.com/watch?v=j50ZssEojtM

Twenty-seven kilometers of tunnel under ground
Designed with mind to send protons around
A circle that crosses through Switzerland and France
Sixty nations contribute to scientific advance
Two beams of protons swing round, through the ring they ride
'Til in the hearts of the detectors, they're made to collide
And all that energy packed in such a tiny bit of room
Becomes mass, particles created from the vacuum
And then…

LHCb sees where the antimatter's gone
ALICE looks at collisions of lead ions
CMS and ATLAS are two of a kind
They're looking for whatever new particles they can find.
The LHC accelerates the protons and the lead
And the things that it discovers will rock you in the head.

We see asteroids and planets, stars galore
We know a black hole resides at each galaxy's core
But even all that matter cannot explain
What holds all these stars together – something else remains
This dark matter interacts only through gravity
And how do you catch a particle there's no way to see
Take it back to the conservation of energy
And the particles appear, clear as can be

You see particles flying, in jets they spray
But you notice there ain't nothin', goin' the other way
You say, "My law has just been violated – it don't make sense!
There's gotta be another particle to make this balance."
And it might be dark matter, and for first
Time we catch a glimpse of what must fill most of the known 'Verse.
Because…

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Antimatter is sort of like matter's evil twin
Because except for charge and handedness of spin
They're the same for a particle and its anti-self
But you can't store an antiparticle on any shelf
Cuz when it meets its normal twin, they both annihilate
Matter turns to energy and then it dissipates

When matter is created from energy
Which is exactly what they'll do in the LHC
You get matter and antimatter in equal parts
And they try to take that back to when the universe starts
The Big Bang – back when the matter all exploded
But the amount of antimatter was somehow eroded
Because when we look around we see that matter abounds

But antimatter's nowhere to be found.
That's why…

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The Higgs Boson – that's the one that everybody talks about.
And it's the one sure thing that this machine will sort out
If the Higgs exists, they ought to see it right away
And if it doesn't, then the scientists will finally say
"There is no Higgs! We need new physics to account for why
Things have mass. Something in our Standard Model went awry."

But the Higgs – I still haven't said just what it does
They suppose that particles have mass because
There is this Higgs field that extends through all space
And some particles slow down while other particles race
Straight through like the photon – it has no mass
But something heavy like the top quark, it's draggin' its ***
And the Higgs is a boson that carries a force
And makes particles take orders from the field that is its source.
They'll detect it….

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Now some of you may think that gravity is strong
Cuz when you fall off your bicycle it don't take long
Until you hit the earth, and you say, "Dang, that hurt!"
But if you think that *force* is powerful, you're wrong.
You see, gravity – it's weaker than Weak
And the reason why is something many scientists seek
They think about dimensions – we just live in three
But maybe there are some others that are too small to see
It's into these dimensions that gravity extends
Which makes it seem weaker, here on our end.
And these dimensions are "rolled up" – curled so tight
That they don't affect you in your day to day life
But if you were as tiny as a graviton
You could enter these dimensions and go wandering on
And they'd find you...

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