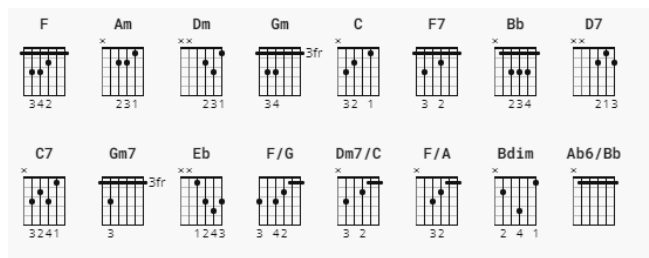


## E mu and tau (the Particle Physics song)

By Andy "Dijon" French. Based upon [Don't stop me now](#) by Queen.



F Am Dm  
There are, two types of things, that make everything  
Gm C  
In the U---ni---verse  
F F7 Bb  
There's Fermions, with half integer spin, yeah, they're either  
Gm7 D7  
groupings of quarks, or leptons  
Gm F C Gm Gm F C Gm  
(such as) e, mu and tau.... e mu and tau  
Gm C (play this baré)  
And their neu-tri-nos, neu-tri-nos!

F Am Dm  
An electron, already you will know, is pretty small  
Gm C  
It negatively charged  
F Am  
Muons-made, from cosmic rays  
Dm  
Two hundred times heavier  
Gm C F  
And tau, tau, taus, much more massive still!  
F7 Bb  
But what about neutrinos?  
Gm7  
They don't have a charge  
D7 Gm  
But might have a bit mass  
D7 Gm  
To detect them is a pain in the ass!  
Gm Bb C  
Trillions of them are now passing through you!

### Chorus

F Gm Am Dm  
E, mu and tau  
Gm7 C  
They're fundamental, can't split an electron  
F Gm Am Dm  
E, mu and tau  
Gm7 D7  
Add a positron, and make two photons!

Gm F C Gm Gm7  
But what about the quarks? (In pairs or triplets)  
Gm F C Gm  
There's up, down and charmed,  
C Ab6/Bb  
And strange, bottom and top.....

F Am Dm  
A proton is: up, up and down, in a baryon,  
Gm7 C  
Not like a meson - a quark and anti-quark-pair  
F Am  
In a nucleus, neutrons might decay  
Dm  
To protons, leptons too  
Gm Gm7 C F  
Via a ne---ega-----tive, W (say as "double-u")

F7 Bb Gm7  
How do these particles interact? Bosons  
D7 Gm  
in a Feynman diagram  
D7 Gm Gm7 Bb C  
The standard model plan. Of an accelerator near you....

### (Acapella)

Leptons, aren't hadons, like neutrons (up, down, down)  
Omega's a strange one (s, s, s)  
There's kaons and pions (u s bar, u d bar)  
But the quarks with their gluons ain't free.....!

### (Guitar or piano or violin solo over)

F Am Dm Gm C  
F Am Dm Gm C F

F F7 Bb  
I've told you about neutrinos  
Gm7  
They don't have a charge  
D7 Gm  
But might have a bit mass  
D7 Gm  
To detect them is a pain in the ass!  
Gm Bb C  
Trillions of them are now passing through you!

### Chorus reprise

### (Outro ... To fade out).

F Am Dm Gm C F F7 Bb Gm7  
F Am Dm Gm C F F7 Bb Gm7  
F Am Dm Gm C F F7 Bb Gm7

Andy "Dijon" French. March 2024.