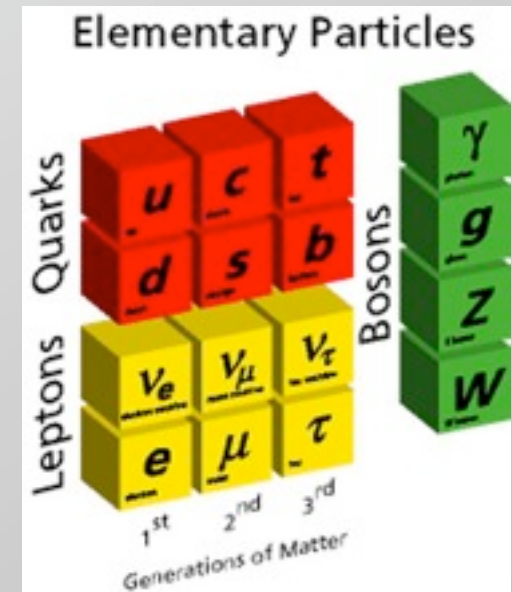


fundamental physics — particle interactions

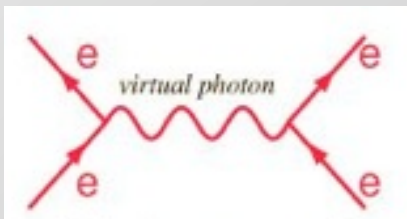
standard model of particle physics

- ▶ physics at the microscopic scale
origin and structure of matter
- ▶ quantum field theory (QED, Yang-Mills)
describing the
 - constituents of matter (fermions)
 - fundamental interactions (bosons)

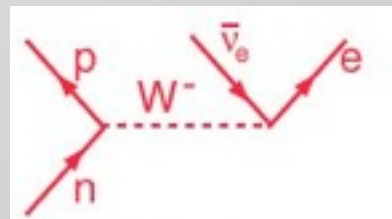


$$D^\mu F_{\mu\nu} = J_\nu$$

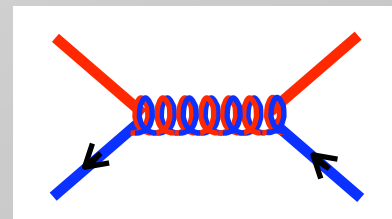
$$A_\mu = \begin{pmatrix} A_0 \\ A_1 \\ A_2 \\ A_3 \end{pmatrix}$$



electro: photon



weak: W,Z-boson



strong: gluon

and gravity ..?