The Higgs boson
final piece in the puzzle?

Outreach project, ESHEP 2017, Evora

Group E
So... HOW DO YOU GET MASS?
The grandma field
The grandma field
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Standard Model of Elementary Particles

three generations of matter (fermions)

**QUARKS**

- **u (up)**: mass ≈ 2.4 MeV/c², charge = 2/3, spin = 1/2
- **c (charm)**: mass ≈ 1.275 GeV/c², charge = 2/3, spin = 1/2
- **t (top)**: mass ≈ 172.44 GeV/c², charge = 2/3, spin = 1/2

**LEPTONS**

- **e (electron)**: mass ≤ 0.511 MeV/c², charge = -1, spin = 1/2
- **μ (muon)**: mass ≤ 105.67 MeV/c², charge = -1, spin = 1/2
- **τ (tau)**: mass ≤ 1.7768 GeV/c², charge = -1, spin = 1/2

**SCALAR BOSONS**

- **γ (photon)**: mass = 0
- **H (Higgs)**: mass = 125.09 GeV/c²

**GAUGE BOSONS**

- **Z boson**: mass ≈ 91.19 GeV/c²
- **W boson**: mass ≈ 80.39 GeV/c²