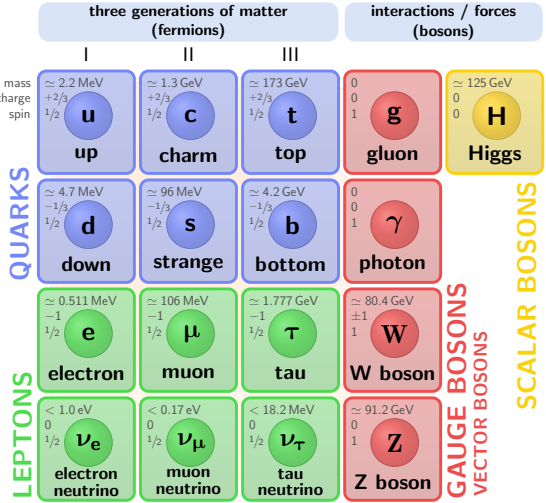
Standard Model of Particle Physics

Izaak Neutelings

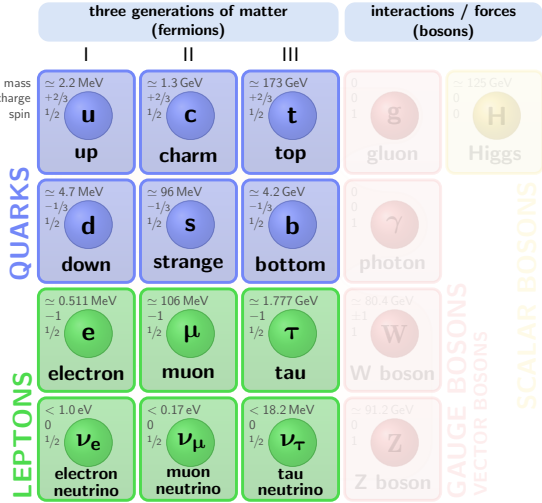
University of Zurich

2023

Standard Model of Particle Physics

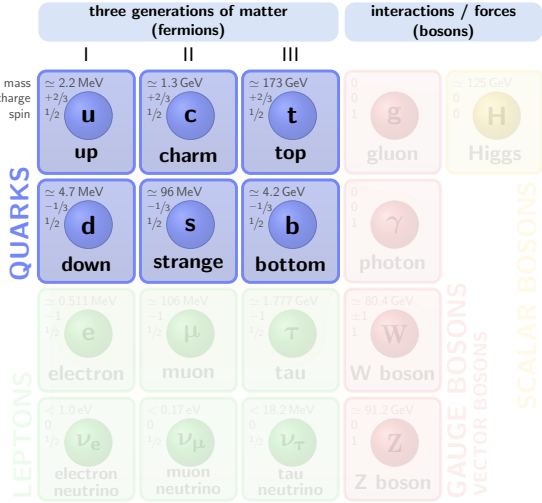


Standard Model of Particle Physics



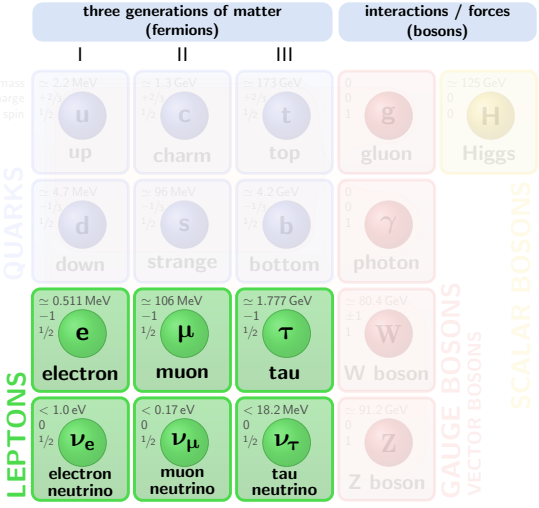
- **Fermions** of spin 1/2, which make up matter

Standard Model of Particle Physics



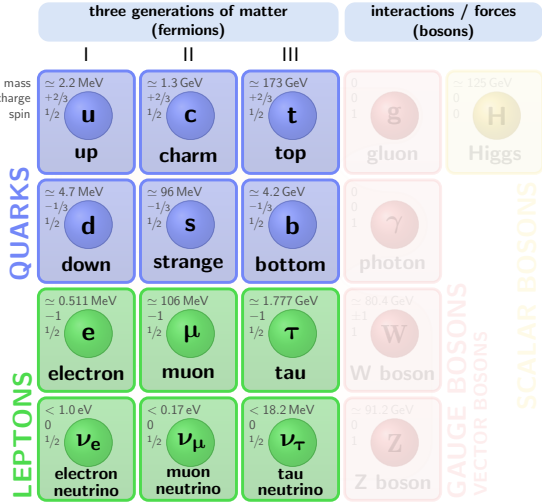
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**

Standard Model of Particle Physics



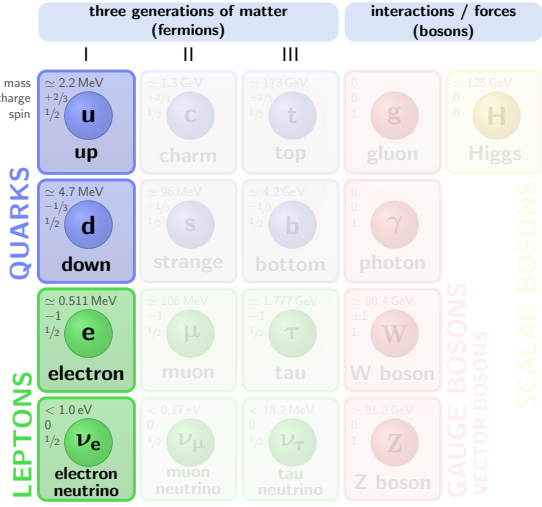
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**

Standard Model of Particle Physics



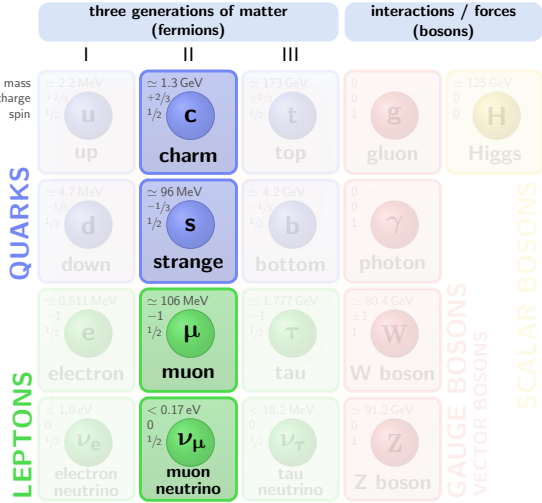
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations

Standard Model of Particle Physics



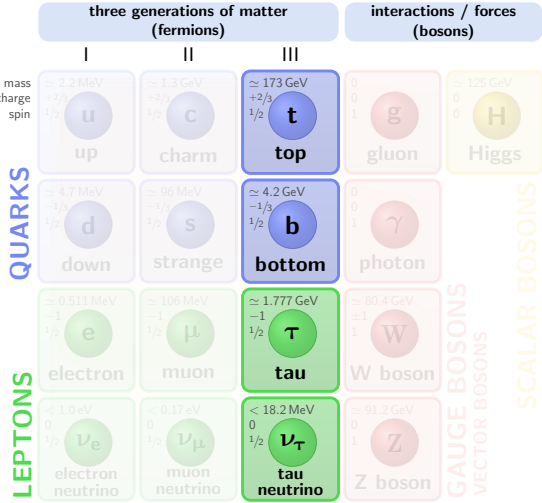
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations

Standard Model of Particle Physics



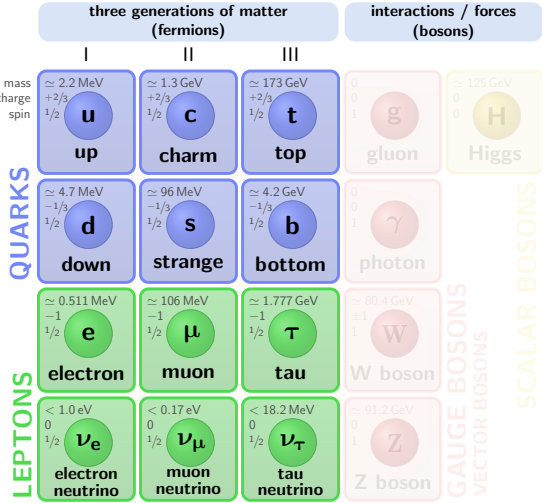
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations

Standard Model of Particle Physics



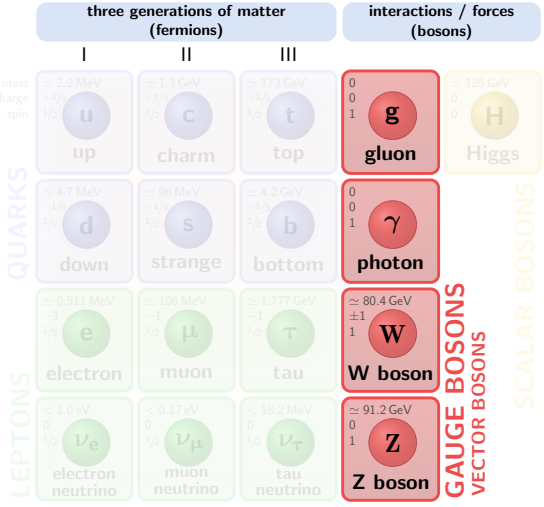
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations

Standard Model of Particle Physics



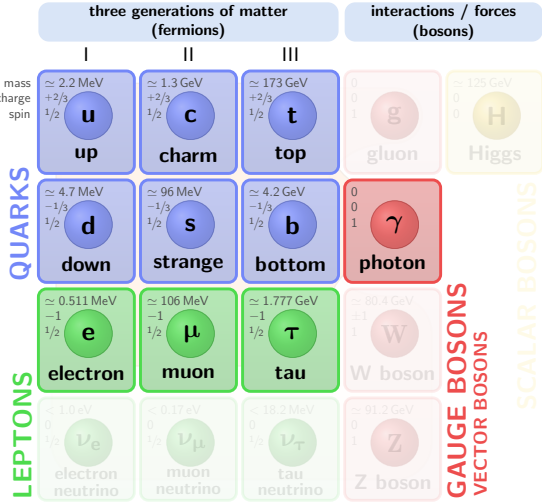
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations

Standard Model of Particle Physics



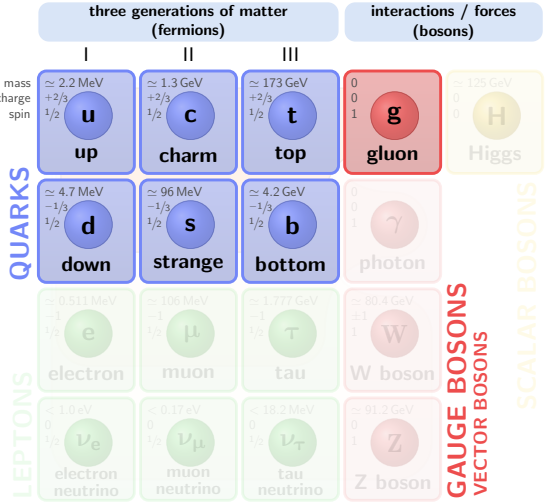
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions

Standard Model of Particle Physics



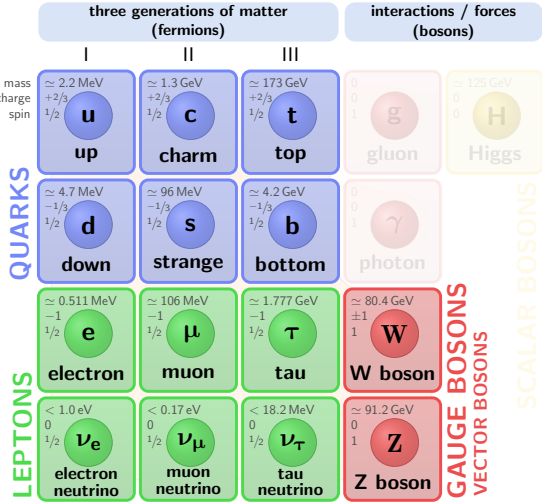
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction

Standard Model of Particle Physics



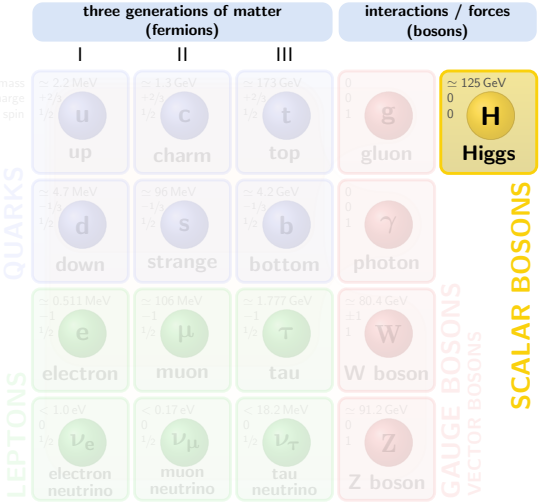
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction
  - Strong interaction

Standard Model of Particle Physics



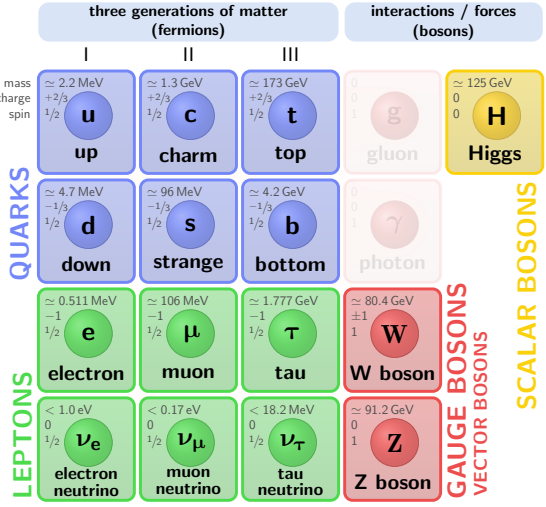
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction
  - Strong interaction
  - Weak interaction

Standard Model of Particle Physics



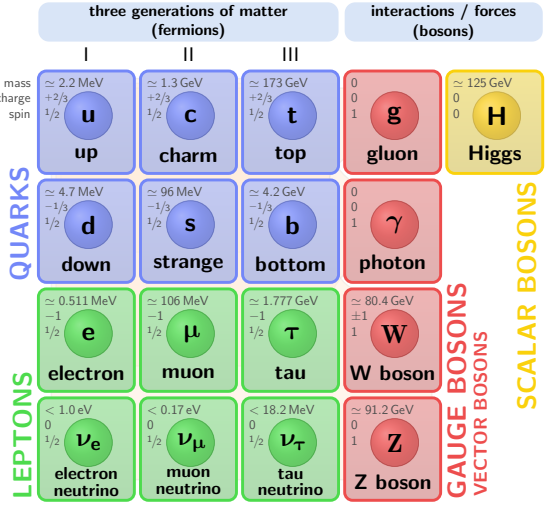
- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction
  - Strong interaction
  - Weak interaction
- One **scalar boson** of spin 0, which gives mass to fermions and weak bosons

Standard Model of Particle Physics



- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction
  - Strong interaction
  - Weak interaction
- One **scalar boson** of spin 0, which gives mass to fermions and weak bosons

Standard Model of Particle Physics



- **Fermions** of spin 1/2, which make up matter
  - **Quarks**
  - **Leptons**
  - Three generations
- **Gauge bosons** of spin 1, which mediate the fundamental interactions
  - Electromagnetic interaction
  - Strong interaction
  - Weak interaction
- One **scalar boson** of spin 0, which gives mass to fermions and weak bosons