

???

## High-energy physics

## Condensed matter physics

Elementary  
What?

Emergent  
Quantum fields

= Elementary  
Quantum fields

Emergent  
particles

= Elementary  
particles

Emergent  
Quantum fields

Emergent  
Quasiparticles

Strings? Spin-networks?

Gauge fields, Dirac fields, ...

Photons, Electrons, ...

Effective fields  
(Density, Magnetization, ...)

Magnons, Spinons, ...

$10^{28}$  eV (Planck)

Standard Model  $10^9$  eV

$10^0$  eV

High energies  
Small lengths  
Short times

This course

Low energies  
Large lengths  
Long times

Speculation

Knowledge