

# Complexity

number of particles



$10^0$

$10^1 - 10^2$

$10^3 - 10^5$

$10^{12}$

$10^{23}$

elementary  
particles

atoms,  
molecules

cluster

mesoscopic  
systems

macroscopic  
solid or liquid

periodic table  
chemical prop.  
optical prop.

solid or liquid  
properties  
emerge

quantum  
interference  
phenomena

conductivity  
magnetism  
superconductivity

phases and  
phase transitions

Emerging phenomena  
More is different !