

# Itinerant vs localised magnetism

## Magnetism

### Localised

Comes from electrons which are localised on atoms and/or impurities in a solid state system

Models in terms of spins  
 $S_i$  localised on sites

MnO, FeO, magnetic salts

May be insulators

### Itinerant

Comes from free electrons (Fe, Ni, Cr, ...)

Two contributions:

- Spins of itinerant electrons
- Orbital motion of itinerant electrons

We mapped 1D spin chains onto fermions. These fermions should not be confused with itinerant electrons