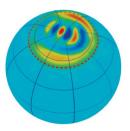
## Atoms and photons

- ► The team: Hélène Perrin (13 courses), Clément Sayrin and Tarik Yefsah (13 exercice classes)
- ► **Topic**: light-matter interaction in the semi-classical and quantum regimes, light field quantization
- Course programme:
  - Einstein's coefficients
  - semi-classical approach (interaction, atom and field relaxation, optical Bloch equations)
  - field quantization (field operators, Fock states, coherent states, relaxation)
  - quantum field coupled to quantum matter (photodetection, dressed states, cavity quantum electrodynamics...)



- ► Excercice classes based on research papers: absorption in the saturation regime, laser cooling, EIT, quantum optomechanics, etc.
- **Exam**: written exam ( $\sim$ 3 hours).