Introducing myself

- **Camille CHENEY, French**

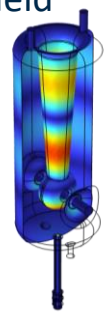
- **Education**
  - BSc degree in Physics
    - Université Savoie Mont-Blanc
  - MSc degree in Applied Physics (M1)
    - Université Paris-Saclay
  - MSc degree in Particle Accelerator Physics (M2)
    - Master GI-PLATO (Grands Instruments – Plasmas Lasers Accelerators Tokamak)
    - Université Paris-Saclay

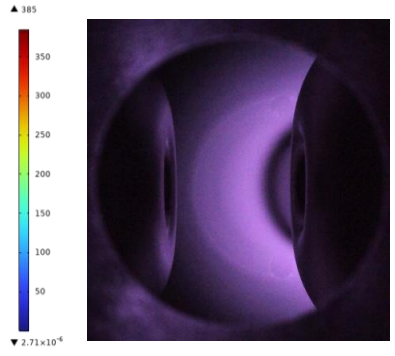
- **Experience**
  - Short Term Internship at CERN (2019, 3 months)
    - Plasma cleaning of particle accelerator components using a remote plasma source
  - M1 internship at IJCLab (2022, 4 months)
    - Ion source for the GBAR experiment at CERN + metallic additive manufacturing (3D printing)
  - M2 internship at IJCLab (2023, 5 months)
    - Plasma processing development for SPIRAL2 quarter wave resonators

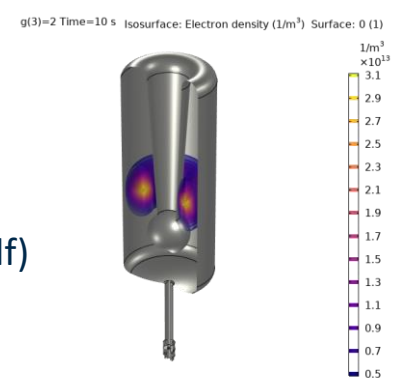
My PhD project

- **PhD topic:** *"Study and test of an "in-situ" plasma processing technique to improve surface properties of superconducting accelerating cavities"*

- **Context:**
  - Particle accelerators need devices to accelerate particles = accelerating cavities
  - New generation accelerators use the superconducting technology to sustain very high E-field
    - Superconducting = no electrical resistance = no losses
    - E-field [V/m] can be seen as a "voltage"
    - Force felt by charged particles $\vec{F} = q.\vec{E}$: the higher E, the higher the acceleration
  - E-field can be limited by surface pollutions (hydrocarbons)
    - ➢ **Plasma processing to remove pollutions**





- **My EAJADE secondment** (3 weeks in total)
  - Spent 2 weeks at Jefferson Lab (USA) + 1 week at Fermilab (USA) for a conference
  - JLab staff has a lot of experience with plasma processing: technical knowledge transfer to me
  - JLab performed computer plasma simulations: I learned how to simulate a plasma in a cavity

- **Usefulness of my EAJADE secondment**
  - The technical training helped me to better understand some plasma processing procedures
  - The simulation training saved me a lot of time after I came back to IJCLab (not have to learn by myself)
  - Plasma simulations helped me to understand/explain the plasma dynamics