

---

# 3D Multipacting Calculations

**Jörg Kewisch**

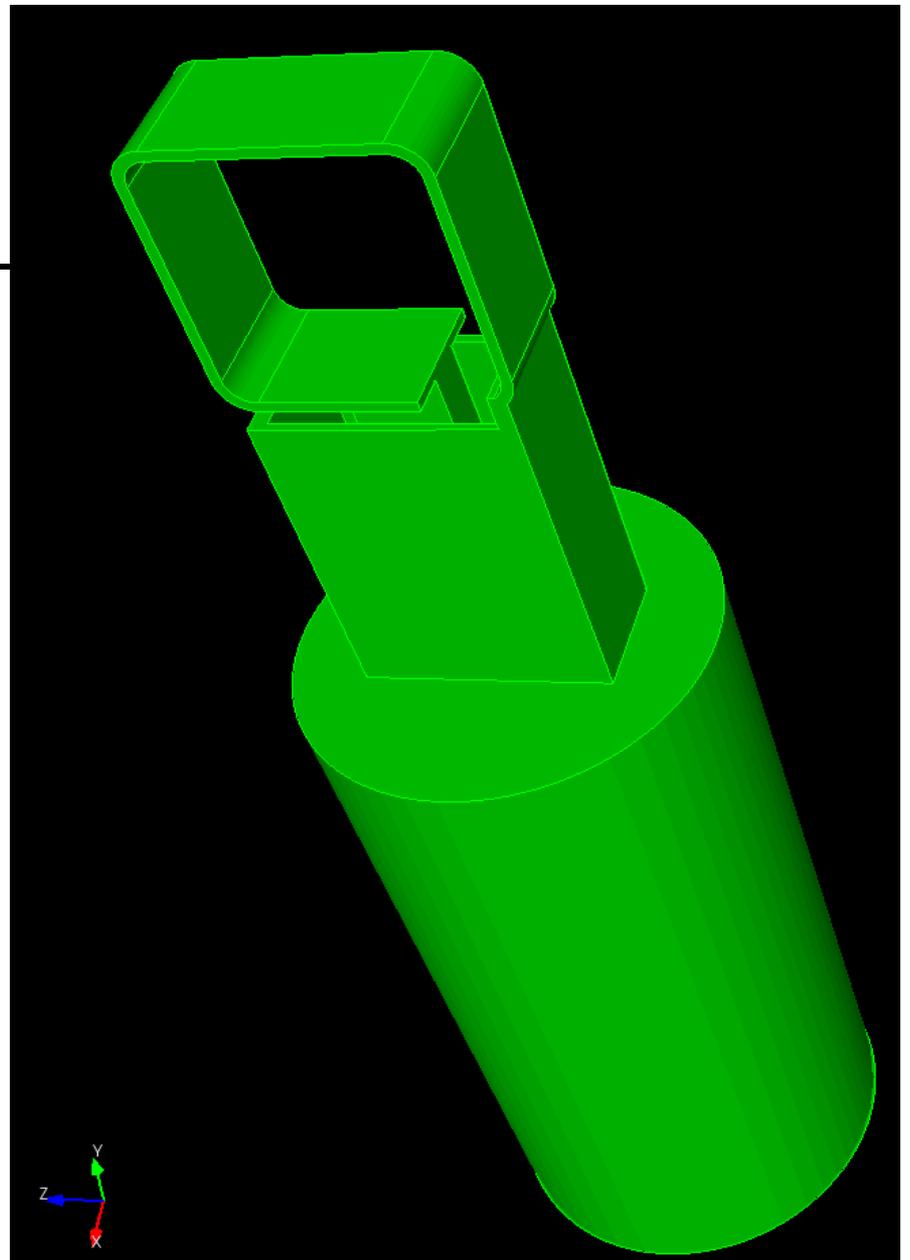
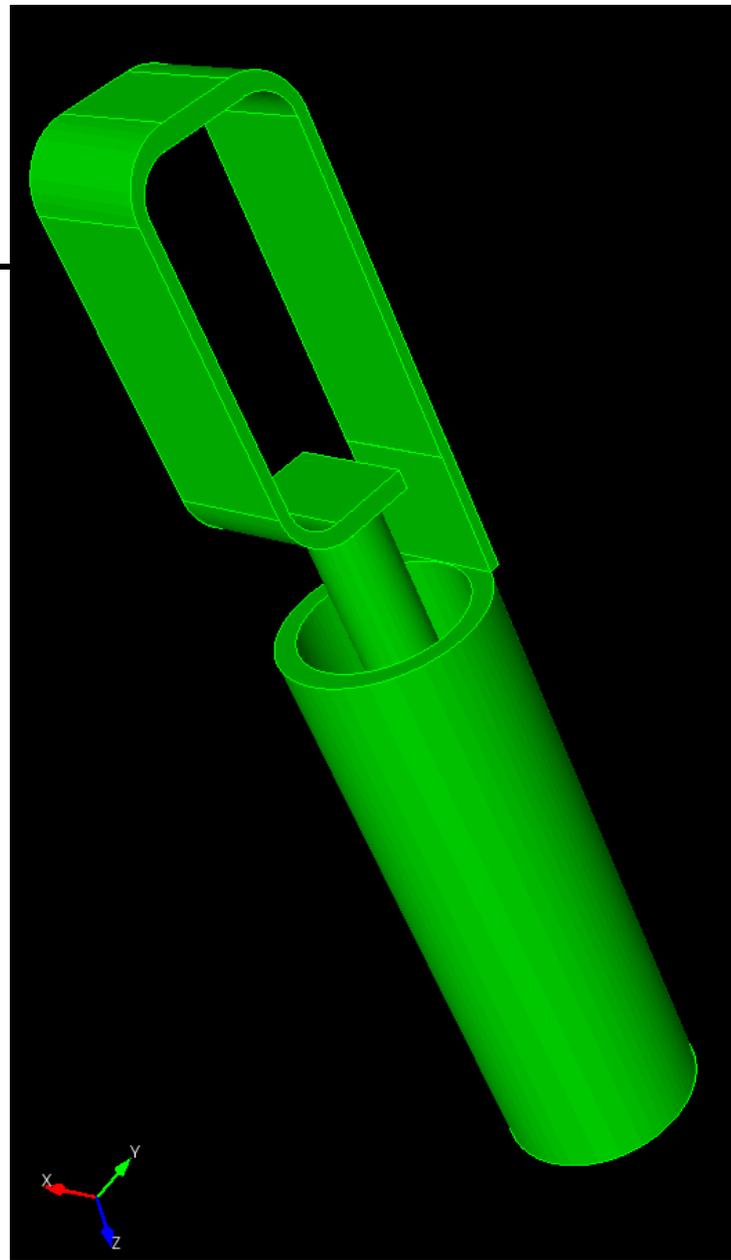
**with help from**

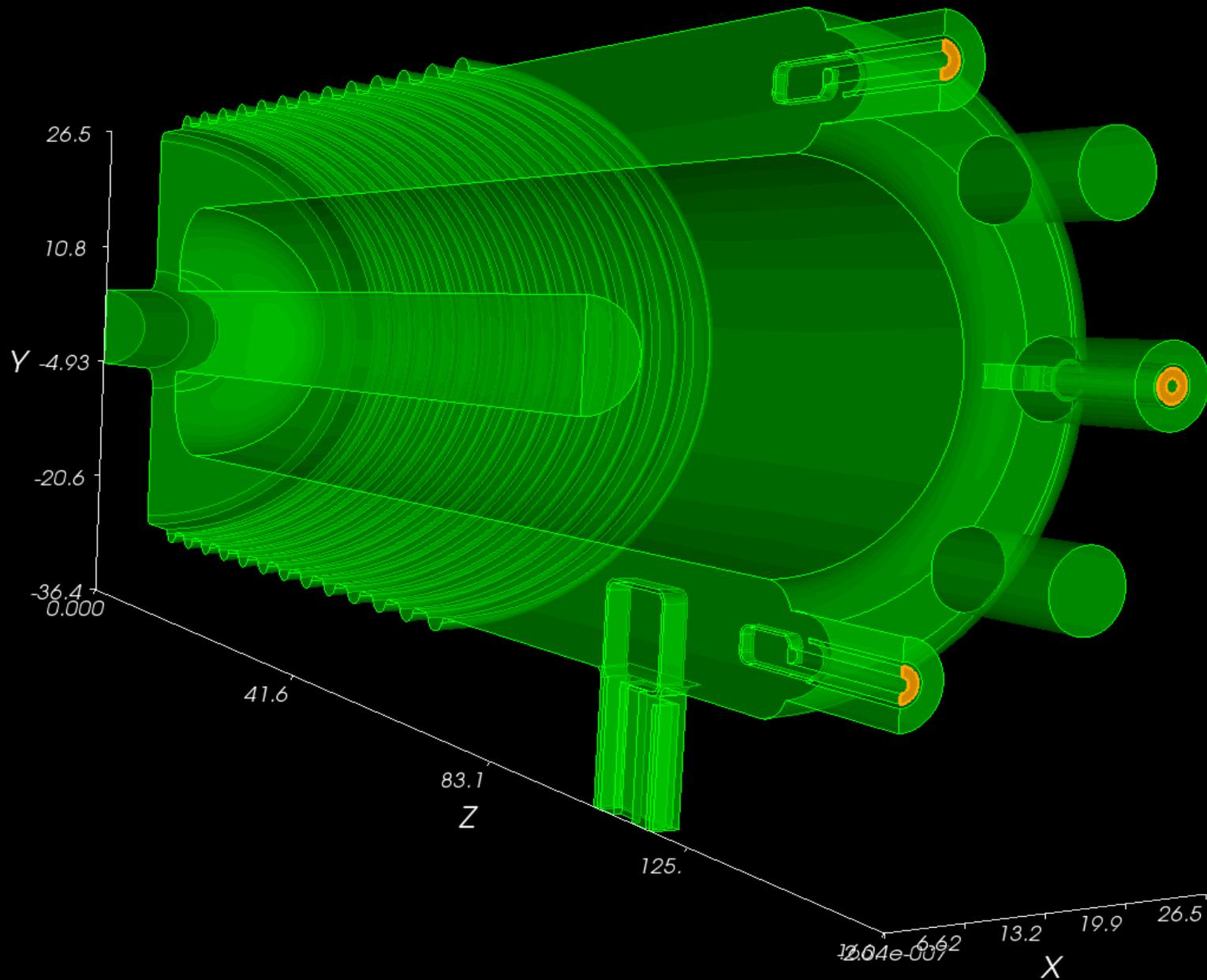
**Ilan Ben-Zvi, Damayanti Naik, Manuel Grau, Steven Bellavia, Lixin Ge**

# Programs Used

---

- Cubit mesh generator (Sandia)
- Omega3P field solver (Slac)
- Track3P Multipacting code (Slac)





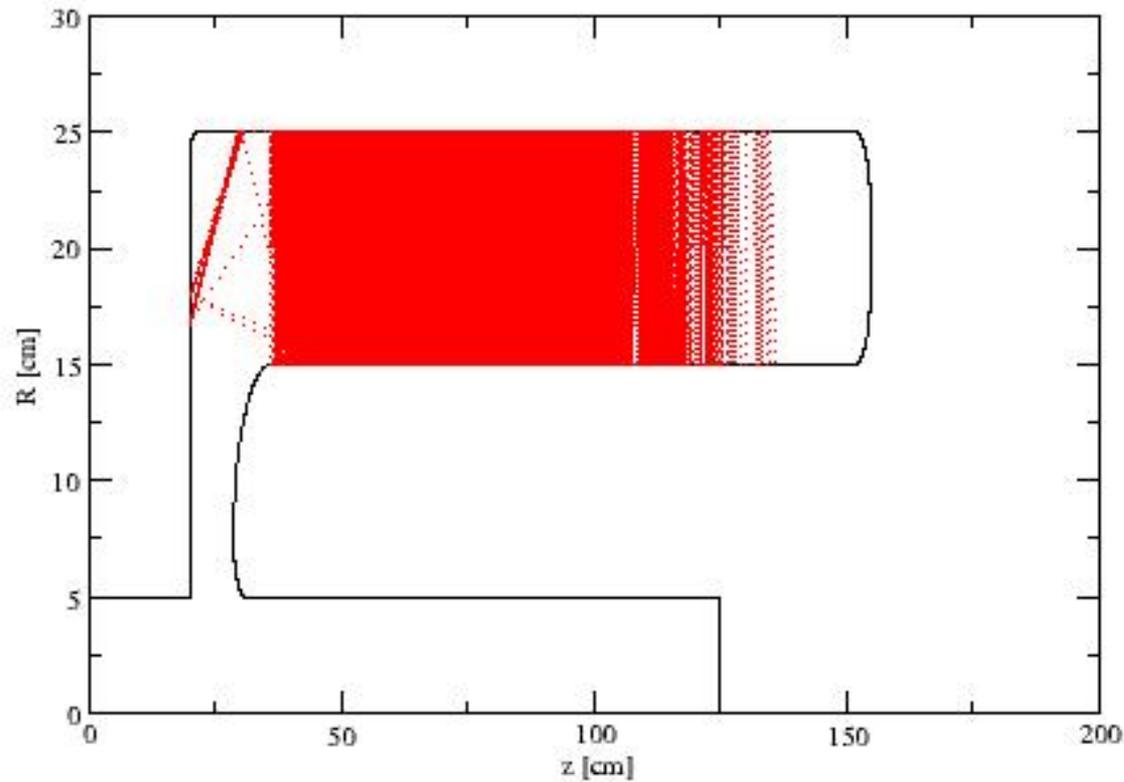
# Method

---

- **Loop over RF field levels**
  - To 10 kV in 10 eV steps
  - To 2.5 MV in 2.5 kV steps
- **Loop over start phases**
- **Place test particles on the surfaces**
  - 100 x 100 x 300 per 20 cm longitudinal distance
- **Track particles**
  - 20 minutes with 64 CPUs
- **If particle survives 50 impacts indicate possibility of multipacting**

# Tracking without Corrugations and Dampers

---



# Tracking with Corrugations and Dampers

---

- No multipacting was observed in the first runs
- Finer step sizes in field levels and higher particle density is necessary
- Calculations must be repeated for all fundamental damper positions at fixed field level.