Need of Radiation Hardness Studies – AC-LGAD TOF

- **AC-LGAD Sensors:**
  - Proton/neutron beams with neutron fluence $5x10^{10}$-$2x10^{11}$ 1MeV*n_{eq}/cm^2 [1]
  - 1st HPK production sensors with maximum 1x0.5 cm^2 area at LANSCE got delayed. Looking other places while waiting for updated schedule from LANSCE
  - 2nd HPK production sensors with maximum 3.2x4 cm^2 planned, available for radhad studies in Q4 2024
- **Frontend readout ASICs**
  - TID with gamma/x-ray at 100 kRad [1], SEE with high intensity proton/ion beams
  - Not ready for tests until 2025
- **RDO with commercial FPGA**
  - TID with gamma/x-ray at 100 kRad [1], SEE with high intensity proton/ion beams
  - Prototype ready in Q4 2024
- **Flexible hybrid PCB, Epoxy, CF structure, etc**
  - TID with gamma/x-ray at 100 kRad [1]
  - Prototype ready in Q4 2024

[1] 10 years of running*2 safety factor, based on Xiao Huang (Rice University) TOF DSC meeting on Nov 14, 2023.