Past activities at KEK

PhD student at WSU (2014-2017), doctoral advisor: G. Bonvicini
- Worked on development (hardware/software) and responsible at KEK commissioning for the Large Angle Description Beamstrahlung Monitor (LABM) for SuperKEKB (e+e-).
- Written simulation of radiation fields from either beamstrahlung or bending magnets that can compute LABM signals and backgrounds;
- Design for a collision timing monitor for SuperKEKB (NIMA, S. Di Carlo, F. Messina).

Postdoctoral Fellow at LAL (2017-2019), supervisor: P. Bambade
- Worked on advancement and commissioning of (diamond sensors based) fast luminosity monitor LumiBelle2 for SuperKEKB;
- Simulation and data analysis to understand signal and background levels;
- Experimental and simulation study of the vertical beam size determination at the interaction point of SuperKEKB using offset scans (submitted to PRAB, S. Di Carlo et al);
- Continued collaboration with LABM and join IR accesses as safety expert (+1000h spent in IR).

Present/future activities at CERN

Project in the section: work on the new generation of beam wire scanner (BWS) within the LHC Injectors Upgrade (LIU) project.

Fellow at CERN (October 1, 2019-present), supervisor: F. Roncarolo
- GEANT4 simulations of proton beam hitting the wire and energy deposited in the scintillators;
- Participate in BWS calibration tests in laboratory:
  - perform measurements;
  - analyse interpret data;
- Support in defining and testing the PMT signals data processing;
- Study PMT linearity and saturation levels;
- Wire scanners test, validation and commissioning during all phases;
- Assess the systems performance in terms of precision, accuracy and resolution:
  - compare to other instruments (e.g. PSB old scanners, PS Beam Gas Ionization (BGI), SPS beam synchrotron radiation telescope (BSRT)) during normal operation
  - propose and carry out dedicated MD studies (e.g. closed orbit bumps, multiple scanners cross-calibration with different beam conditions, etc ...)