IFIC contribution to WP5

- Task 5.2: Simulation of Beam loss in the IRs
  - Beam losses studies including errors for the upgraded IRs
  - Beam parameter impact
  - Operational tolerances
  - Beam impact scenarios for energy deposition and collimator design
  - Input for energy deposition studies
- Task 5.3: Design of collimation in the IRs
  - Collimation with same level of losses
  - Collimator requirements
  - Integration of collimator in the new optics
  - Feed forward to simulation WPs

- Participated into the simulation campaign on the collimation upgrade program, providing input for engineering studies and supporting the IR collimators upgrade

Non linear collimation studies

- Studies on the non-linear collimation for the LHC with the present optics (phase advance matching and 3 new collimators) from the point of view of cleaning efficiency and asynchronous dump operation mode (to be studied)
- Study the applicability of the non-linear collimation in the HL-HLC ATS optics proposals(to be studied)

Asynchronous dump studies

- Sixtrack code modified in order to simulate the effect of realistic asynchronous dump effect for different optics studying superposition of different possible optics errors.
- On going benchmarking of the Sixtrack collimation routine modified, with MD dump event, using special sets of collimators, all around the LHC machine.
- State-of-the-art simulation code used in cascade to identify critical points on the tertiary collimators and new IR collimators.
- Study in the HL-LHC ATS scenarios (to be studied)

Other related contributions

- Participation to LHC commissioning and machine studies.
- Investigation of irradiation issue on collimators materials.
- Crystal collimation studies: Support to the LHC MD and operation and to the MDs