John Salvesen (Jack) [Irish/Scottish]

Who Am I

Doctoral Student at CERN: BE-ABP-LAF

DPhil Candidate at University of Oxford

CERN Supervisor: Frank Zimmermann

University Supervisor: Phil Burrows

Project within FCCIS Task 2.3:

"Interaction region and machine detector interface design"

Under EAJADE Work package 3:

"Special technologies, devices and systems performance"

Thesis Aim:

Design of an Interaction Point Collision Feedback System for FCC-ee

Studies:

- FCC-ee IP feedback system requirements
- FCC-ee IP feedback input signals
- FCC-ee IP feedback hardware
- **Analyze IP feedback performance of SuperKEKB**
- **Model IP feedback of SuperKEKB**

Thesis Goal

Develop a realistic, self-consistent, model of the FCC-ee IP collision feedback system

Based on input signals from BPMs, luminosity and other potential sources. Including realistic hardware considerations (correctors, processing). Using this model, study the luminosity performance in the presence of magnet vibrations.

SuperKEKB Studies

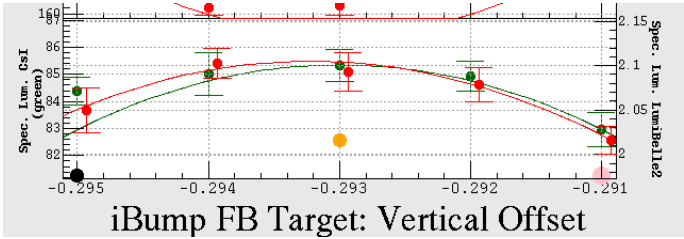
(May-June 2024)

FUTURE CIRCULAR COLLIDER

SuperKEKB

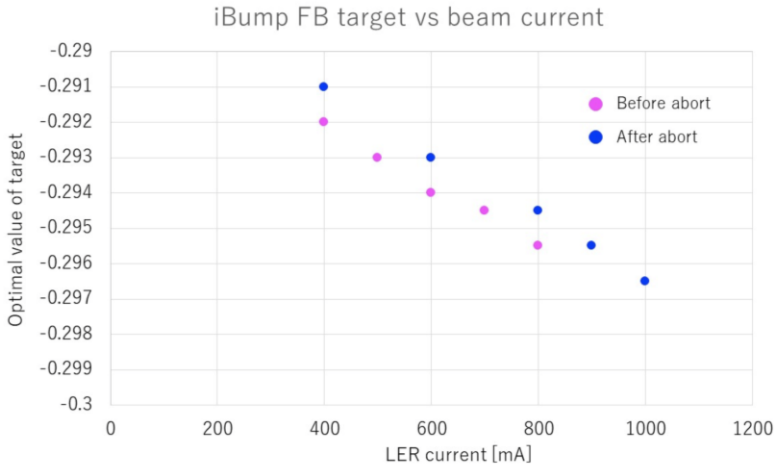
Machine Studies

- Dedicated MD: Investigating drift of ‘IP feedback target’ with beam current
- Follow up studies on historical data ongoing



Simulation

- SuperKEKB Optics Modelling with Xsuite
  - Optics models for LER and HER in development
- Simulation Meetings



Operational Aspects

- Tour of interaction regions and IP Feedback system hardware
- Participation in IP feedback tuning
- Tour of Oxford FONT feedback system at ATF2