



*Future Circular Collider Technical and Financial Feasibility Study
2d FCC Energy Calibration, Polarization and Mono-chromatisation workshop*

FCC EPOL WORKSHOP

Final remarks and Next steps

19-30 September 2022 at CERN

remote participation possible

<https://indico.cern.ch/e/EPOL2022>

Collaborations and synergies

Outside FCC:

EIC – joint workshop for the first week!

SuperKEKb (generally a test of the FCC-ee design)

-- present (operations)

-- and future (precision polarization program)

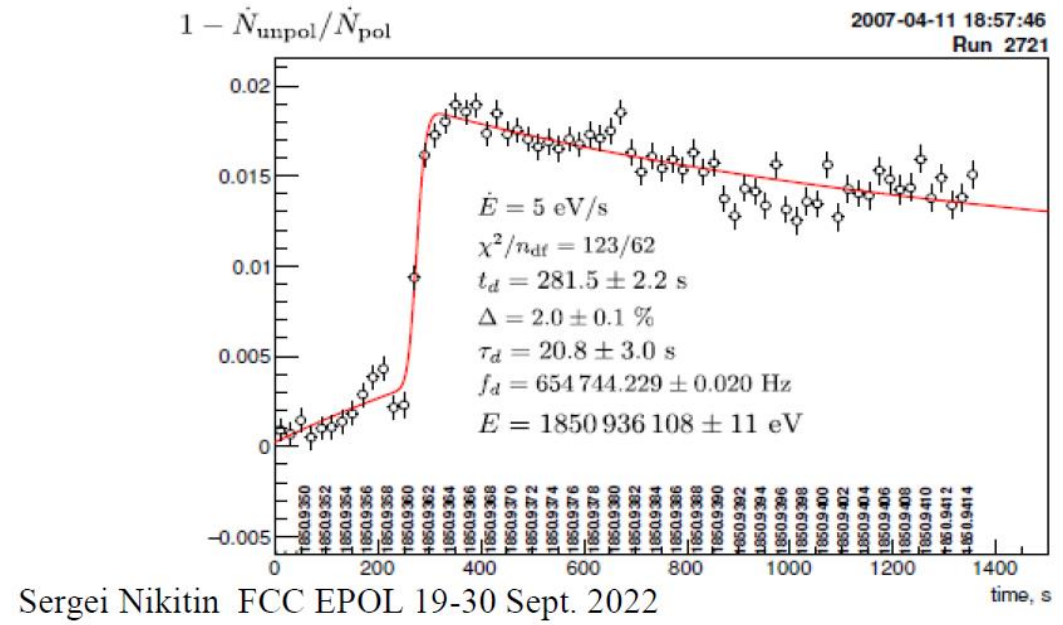
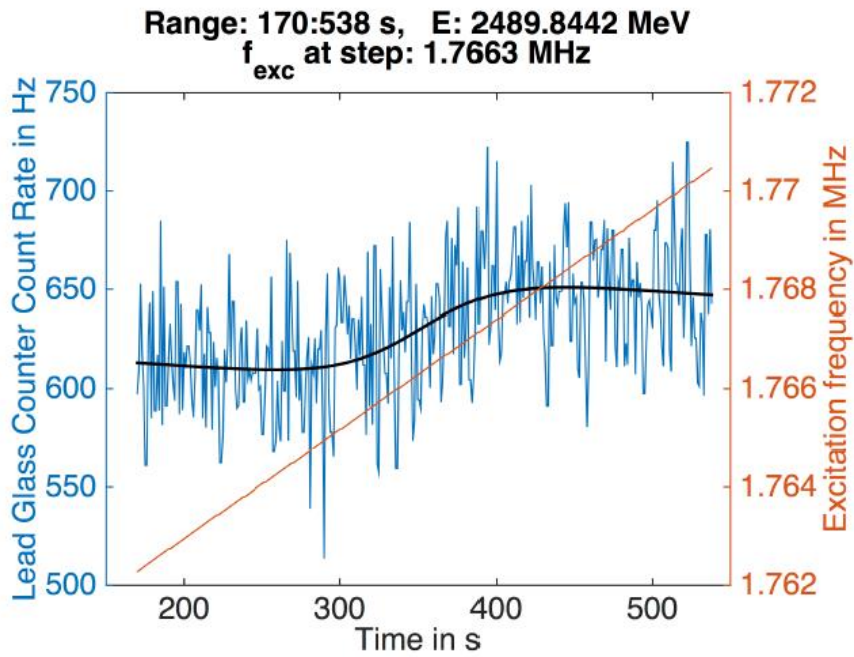
CEPC

VEPP-4M

ANKA-KARA

**Thanks to all contributors
from these projects!**

**spin simulations, polarization measurements,
depolarization and beam energy measurement
operations and diagnostics and more**



Resonant depolarization at ANKA/KARAand at VEPP-4M !

KIT will welcome ideas for tests with KARA!

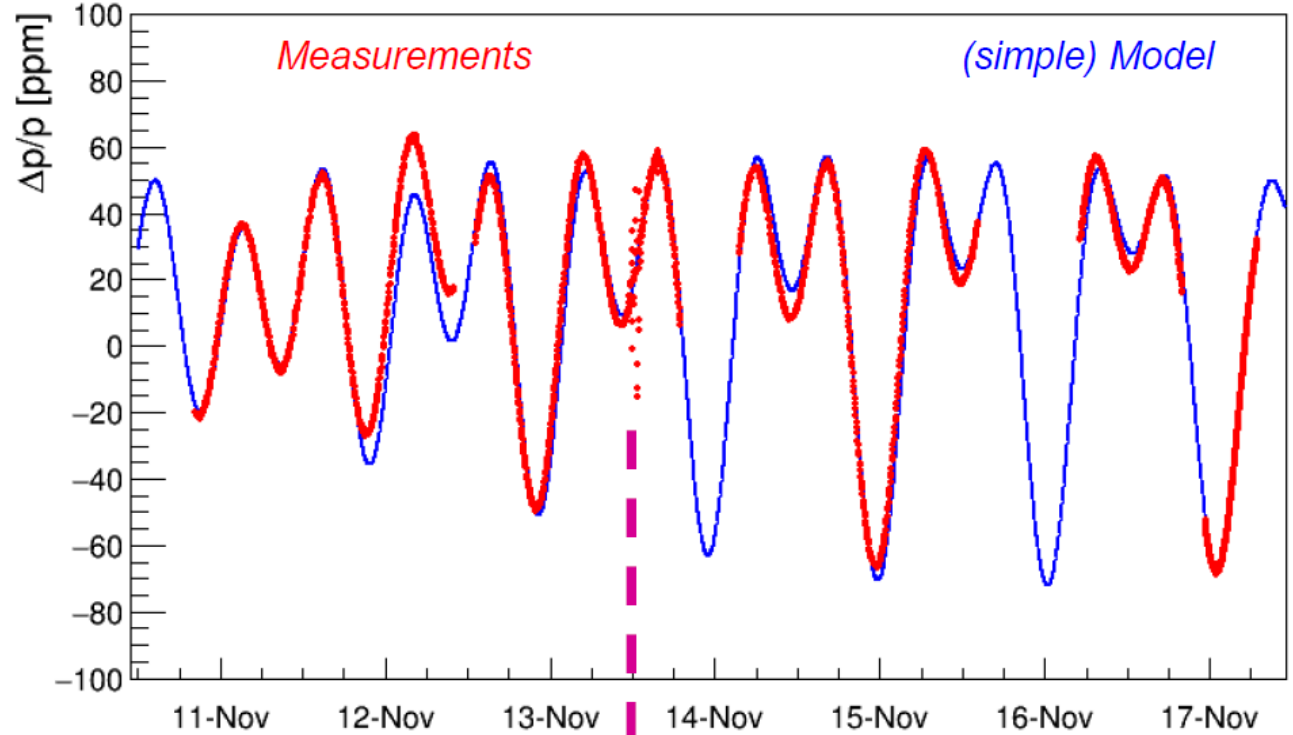
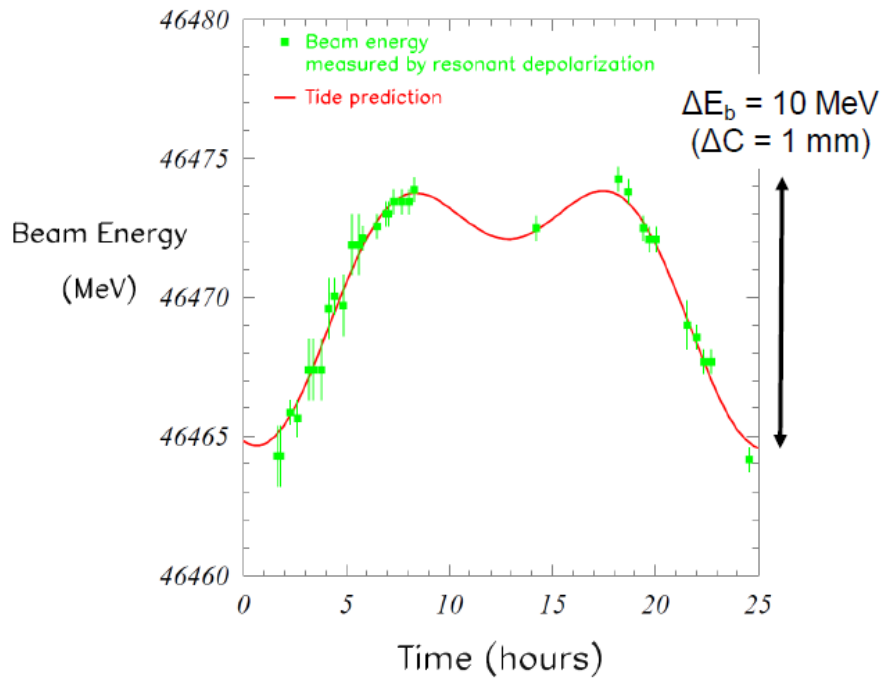
total sys \rightarrow $\sim 7\text{keV}$ at J/psi

Collaborations and synergies

and within CERN/LEP&LHC&FCC

- Experience from LEP (polarimeter, operations, deplarizer and wigglers)
- Experience from LHC (gigantic improvement on BPM and operations)
- synergies with FCC efforts towards high luminosity
(alignment&orbits, optics, BI, BPMs, experiments...)
- **Cornerstone for FCC-ee precision and monochromatization!**
are there any more SM-coupled particles?
and any more source of masses for particles?

LEP -----> LHC



this summed up 4 years of hard work at LEP
(and three different fills).....within a single fill at LHC and just with the BPMs!

The enormous progress in diagnostics is one main source of confidence that the precision at FCC can be pushed by > two orders of magnitude wrt to LEP → target 10^{-7} precision

and ... our first monochromatization optics!!

Hongping Jiang

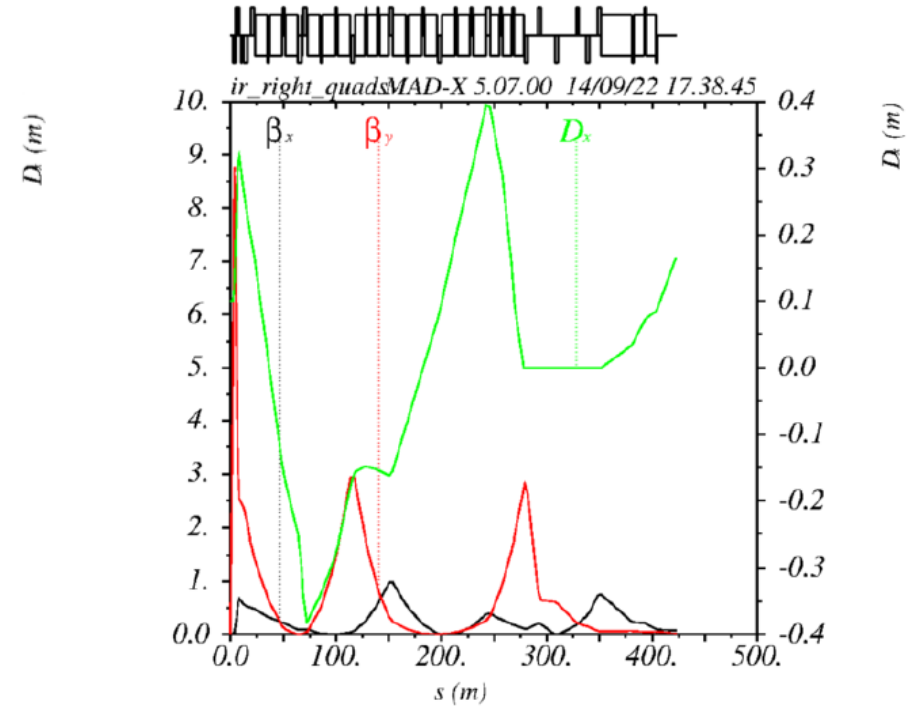
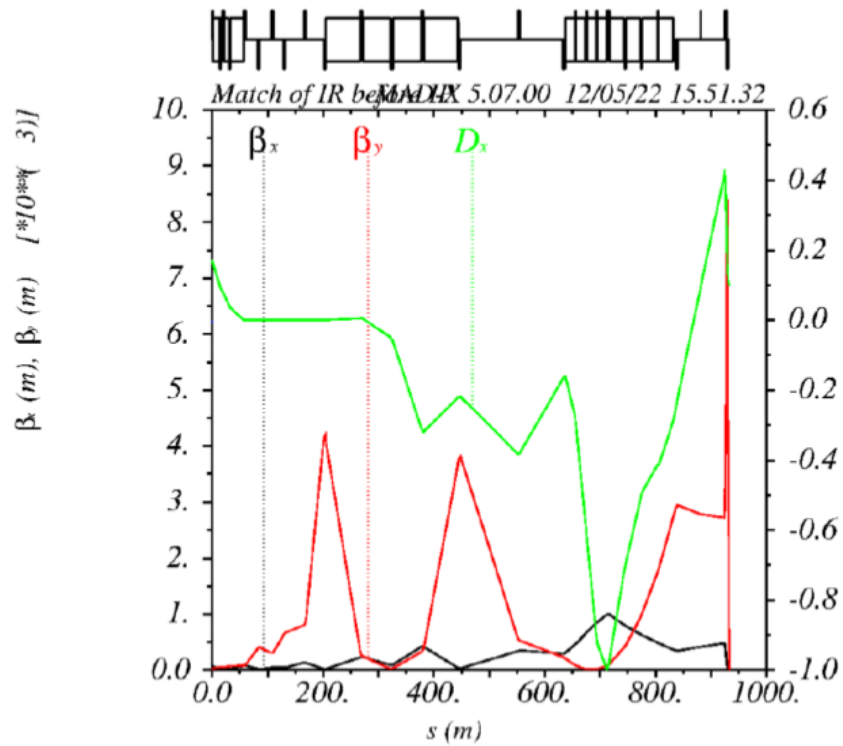


The Preliminary IR Optics for transversal mono-schemes

Before the Interaction Point:

$D^*x = \pm 0.1\text{m}$

After the Interaction Point:



Next steps..

1. Resume bi Weekly meetings starting 13 October 2022 15h30

Guy Wilkinson and Jacqueline Keintzel will convene (and Jorg will give advice)

→ please help by volunteering!

2. Need to assemble two type of documents (contributions from WG conveners)

-- one **specification document** on requirements for EPOL tasks (JK to assemble)

-- wigglers

-- BPMs

-- Depolarizer

-- polarimeters

-- particle physics detectors

-- **description documents** for each of the above from the WGs as appropriate

+ cost estimate for most important items.

+ description of running schemes, operations etc.. incl. summary of precisions

3. all should be submitted to FCC CDS + (arxiv or journal if new scientific content)

cross-referencing,
live documents

Next steps (II)

4. some PR: Courier article on the EPOL workshop and the precision ECM determination
(Guy & Jacqueline editors)
5. provide talks and speakers for upcoming conferences
 - FCC physics workshop (Krakow January 2022)
 - IPAC, ICHEP etc.

2d FCC EPOL Workshop

Program committee

WP1 Eliana Gianfelice, Ivan Koop, Tatiana Pieloni,

WP2 Jacqueline Keintzel, Katsunobu Oide, Jorg Wenninger

WP3 Aurélien Martens, Thibaut Lefèvre, Dave Gaskell

WP4 Patrick Janot, Guy Wilkinson

WP5 Angeles Faus-Golfe, Frank Zimmermann

General :

Alain Blondel, Elke Aschenauer, Tor Raubenheimer,

Vadim Ptitsyn, Todd Satogata, Frank Zimmermann

Many thanks to the programme committee!

113 registered participants from many participating institutes from different continents (> success!)

2d FCC EPOL Workshop

113 registered participants
from many participating institutes
from different continents (> success!)
and many contributions...

many thanks to all contributors
for working so hard!

Contribution List

☰ 127 / 12

3. Welcome and Introduction

👤 Alain Blondel (Universite de Genev...

🕒 19/09/2022, 13:00

13/2-005 Overview and I...

4. Status of the FCC Study

👤 Frank Zimmermann (CERN)

🕒 19/09/2022, 13:15

13/2-005 Overview and I...

5. FCC-ee accelerator and operation

👤 Tor Raubenheimer (SLAC National Acce...

🕒 19/09/2022, 13:40

13/2-005 Overview and I...

6. Status and overview of the EIC

👤 Ferdinand Willeke (Brookhaven Natl LA...

2d FCC EPOL Workshop

Local organization

A.B

Jacqueline Keintzel

and a Big Hurray
for Jacqueline!

FCC secretariat

David Goldsworthy

Julie Hadre

many thanks to David and Julie!