





Welcome address and workshop objectives

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CERN

Accelerator Beam Transfer

SLOW EXTRACTION WORKSHOP 2017

9–11 November 2017, CERN, Geneva, Switzerland

International Organising Committee

Mei Bai GSI
 Kevin Brown BNL
 Giuliano Franchetti GSI
 Matthew Fraser CERN
 Lau Gagnon CERN
 Brennan Goddard CERN
 Sergey Ivanov INEP
 Richard Jacobsson CERN
 Verena Kain CERN
 Vladimir Nagaslaev FNAL
 Hans Stockhorts FZJ
 Masahito Tomizawa KEK
 Frank Zimmermann CERN

<https://indico.cern.ch/event/639766>



Welcome to Geneva, to CERN, and to this Workshop

- Building on success of 2016 Slow Extraction Workshop (GSI).
- The 2017 workshop aims to address topical issues associated with Slow Extraction, as well as providing a forum for discussing between experts in this specialised domain.
- Organised under the auspices of ICFA and ARIES (successor of EuCARD2). It is supported by CERN Physics Beyond Colliders study.
- 56 participants registered:
Thanks for your interest and presence!



Organisation and IOC

- Mei Bai GSI
- Kevin Brown BNL
- Giuliano Franchetti GSI
- Matthew Fraser CERN
- Lau Gatignon CERN
- Brennan Goddard CERN (chair)
- Sergey Ivanov IHEP
- Richard Jacobsson CERN
- Verena Kain CERN
- Lucie Mainoli CERN (administrative support)
- Vladimir Nagaslaev FNAL
- Hans Stockhorst FZJ
- Masahito Tomizawa KEK
- Frank Zimmermann CERN

In case of any problems/questions...

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Coffee and lunch “sessions”

Thurs and Friday:

- Wakeup coffee: 08:00 – 08:45
- Mid-morning coffee: ~10:30 – 11:00
- Lunch: 12:45 – 14:00
- Afternoon coffee: ~15:30 – 16:00

Note that lunch is NOT provided – CERN restaurant 1 and restaurant 2 are both within walking distance

Workshop dinner: Thurs 19:30

- Included in registration: 42 people are signed up
- In the SMASH restaurant
- Opposite CERN main entrance – easy by foot



Visit

- Saturday morning after discussion sessions
- Bus organized from outside **building 6 at 11:15** (gather under the bridge)
- Guided visit to TE/ABT septum workshop and CERN Control Centre: both at Preveessin site
- Bus will bring people back to Meyrin site at **13:00**

Workshop timetable - i

- Four ‘presentation’ sessions Thurs & Fri
 1. Slow Extraction at existing and new facilities (B.Goddard chair)
 2. Existing and new loss reduction methods (K.Brown & M.Fraser)
 3. Beam quality and improving spill structure (S.Ivanov & V.Kain)
 4. Hardware: reducing loss, activation and dose (M.Tomizawa)

Workshop timetable - ii

- Three 'discussion' sessions Fri and Sat
 5. Session summaries and discussion (G.Franchetti, B.Goddard, V.Nagaslaev)
 6. Follow-up from 1st Workshop, proposals for collaboration (G.Franchetti)
 7. Outlook and priorities for 3rd Workshop (V.Nagaslaev)

As it's a workshop, we can have some flexibility in the topics and times

Ambitious objectives

- Get input from clients (physicists, medical users, RP, ...) on constraints (detector pile-up, impact of harmonic content, dose stability requirements, impact of beam loss, ...)
- Look forward to future requirements, and implications for spill quality and loss control
- Review attainable SE performance, in terms of losses and harmonics content.

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NEEDS

- Recall theoretical limitations on loss levels and harmonic content, and dependence on machine configuration etc.
- Propose and discuss potential mitigation measures and new technologies or accelerator physics developments for improvement.

IDEAS

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NEEDS

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IDEAS

- Identify promising research threads and opportunities for synergy between laboratories, including experimental programmes
- Find ways to build collaboration on the engineering challenges and solutions
- Further educational and institutional knowledge retention concerning slow extraction techniques, technologies and limitations.

SYNERGY

Concluding remarks

- Slow extraction is crucial for many clients
- Presents many challenges: both to clients and accelerators
 - Spill structure
 - Machine stability
 - Beam dynamics and simulation
 - Beam losses
 - Activation
- Challenge = Opportunity
- Looking forward to an intense and fascinating few days together!