







Slow Extraction Workshop 2017

Welcome address and workshop objectives

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CERN
Accelerator Beam Transfer



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

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Verena Kain GERN Vladimir Nagaslaev FMAL Hans Stockhorts FJJ Masahito Tomizawa KEK Frank Zimmermann GERN



Welcome to Geneva, to CERN, and to this Workshop

- Building on success of <u>2016 Slow Extraction Workshop</u> (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 <u>ICFA</u> and <u>ARIES</u> (successor of EuCARD2). It is supported by CERN <u>Physics Beyond Colliders</u> 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:

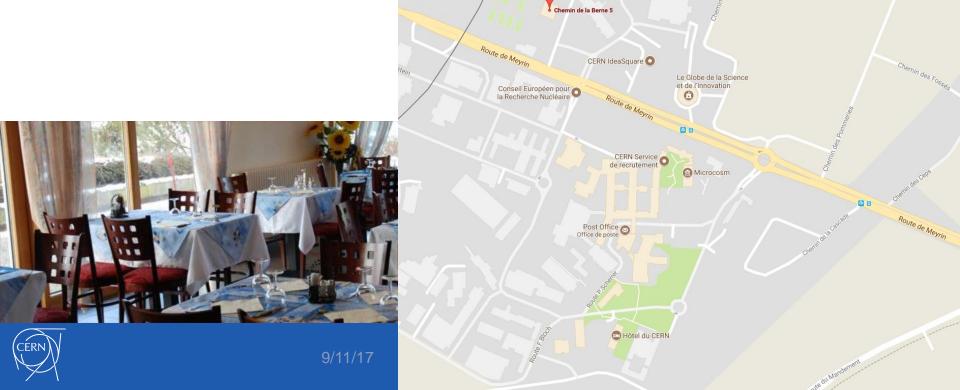
- Wakeup coffee: 08:00 08:45
- Mid-morning coffee: ~10:30 11:00
- Lunch: 12:45 14:00
- Afternoon coffee: ~15:30 16:00

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 Prevessin site
- Bus will bring people back to Meyrin site at 13:00



Workshop timetable - i

- Four 'presentation' sessions Thurs & Fri
 - Slow Extraction at existing and new facilities (B.Goddard chair)
 - Existing and new loss reduction methods (K.Brown & M.Fraser)
 - 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
 - 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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- Propose and discuss potential mitigation measures and new technologies or accelerator physics developments for improvement.



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- Propose and discuss potential mitigation measures and new technologies or accelerator physics developments for improvement.
- 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.



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!

