

3rd International Workshop on Beam Orbit Stabilization - IWBS2004



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ANNOUNCEMENT

3rd International Workshop on Beam Orbit Stabilization 2004

December 6-10, 2004,

Hotel Kirchbühl****, Grindelwald, SWITZERLAND

Dear Colleague,

The "3rd International Workshop on Beam Orbit Stabilization 2004 - IWBS2004" will be held at the Hotel Kirchbühl**** in Grindelwald, Switzerland, on December 6-10, 2004:



The Paul Scherrer Institut (PSI) operating the Swiss Light Source (SLS) has the honour to continue the series of two very successful IWBS workshops hosted by the SPRING-8 Accelerator Division in 2001 and 2002.

Excellent orbit stability is one of the key issues in 3rd generation light sources since the orbit has to be stabilized typically to 1/10th of the beam size at the location of the insertion devices which translates to sub-micron stability requirements over time periods ranging from milliseconds to days. This is accomplished by the careful design of all accelerator components including girders, magnets and power supplies, by operating in "top-up" mode, which guarantees a constant thermal load, and by active stabilization by means of a fast orbit feedback (~kHz sampling rate).

Similar goals have to be met in damping rings for linear colliders in order to get the desired low emittance.

The upcoming linear accelerator based 4th generation light sources also have tight tolerances on their residual trajectory jitter which induces the need for slow, fast and "very fast" bunch-to-bunch feedbacks.

The aim of this workshop series is to give people involved in orbit stability issues an opportunity to share their experiences, identify problems and discuss solutions.

We hope that the workshop location with its breath taking view on the Eiger north face will serve as a stimulating environment for a fruitful workshop:



For further information, please contact:

Marlen Bugmann
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mailto:iwbs2004-secretariat@psi.ch

Michael Böge
IWBS2004 Workshop Organizer
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Paul Scherrer Institut (PSI)
CH-5232 Villigen PSI
SWITZERLAND

fax: +41-56-310-3151
URL: <http://iwbs2004.web.psi.ch/>

We are looking forward to your participation.
Sincerely Yours,

Michael Böge 

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IWBS2004

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[IWBS2004_programoverview_compact_pdf](#) [IWBS2004_schedule_pdf](#)

Program Details

| Session | Description |
|---|---|
| Facility Reports | The facility reports on orbit stabilization highlight the achievements/plans at present and future light sources. |
| Noise Source Suppression | Proper specifications/modifications for/of various accelerator components allow to minimize the initial orbit motion without feedback. |
| Orbit Measurement/Correction | <ul style="list-style-type: none"> • The remaining orbit motion needs to be measured and corrected. Especially the movement of insertion devices can induce significant orbit noise which needs to be compensated by means of feedforward and/or feedback schemes. • "Top-up" operation guarantees a constant heat load on all accelerator and beamline components and thus allows for high mechanical stability. Together with the utilization of fast orbit feedback systems "top-up" operation makes it possible to achieve sub-micron stability on a scale from milliseconds to days. |
| Stability Requirements in 4th Generation Light Sources | Position and energy stability requirements in linac based 4th generation light sources are demanding and require the use of slow and fast feedback systems. Can these light sources profit from the experience gained at storage ring based sources ? |
| User Experience | Two SLS beamline scientists kindly agreed to share their experience with the workshop participants. They will try to put some light on the orbit stability requirements for experiments at their beamlines. |
| Discussion | It is intended to leave sufficient room for discussions throughout the workshop. |

Schedule

Schedule of IWBS2004

Alphabetical List of Oral Contributions
 Alphabetical List of Oral Contributions by Session

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3rd International Workshop on Beam Orbit Stabilization - IWBS2004

Mon, 6.12.04 – Fri, 10.12.04

| | Mon, 6.12.04 | Tue, 7.12.04 | Wed, 8.12.04 | Thu, 9.12.04 | Fri, 10.12.04 |
|-------|--|--|------------------------------|--|--|
| 07:00 | | | | | |
| 08:00 | | | | | |
| 09:00 | 09:00–09:25 Opening R. 09:25–10:40 Facility Reports – MOMA | 09:00–10:15 Facility Reports – Future Facilities – TUMA | 09:00–12:45 Visit of the SLS | 09:00–10:40 Orbit Measurement/Correction – THMA | 09:00–10:15 Orbit Measurement/Correction – FRMA |
| 10:00 | 10:40–11:00 Coffee Brk. 11:00–12:15 Facility Reports – MOMB | 10:15–10:35 Coffee Brk. 10:35–12:15 Noise Source Suppression – TUMB | | 11:00–18:00 Excursion "Nungthajoch" | 10:15–10:35 Coffee Brk. 10:35–12:15 Stability Requirements in 4th Generation Light Sources – FRMB |
| 12:00 | 12:15–12:45 Discussion | 12:15–12:45 Discussion | | | 12:15–12:45 Discussion |
| 13:00 | 12:45–14:00 Lunch | 12:45–14:00 Lunch | 12:45–14:00 Lunch at PSI | | 12:45–14:00 Lunch |
| 14:00 | 14:00–15:40 Facility Reports – MOAA | 14:00–15:15 Orbit Measurement/Correction – TUA A | 14:00–18:00 Visit of the SLS | | 14:00–14:40 Summing-up – FBAA 14:40–15:00 Closing Re. |
| 15:00 | | 15:40–16:00 Coffee Brk. 16:00–17:15 Facility Reports – Future Facilities – MOAB | | | |
| 16:00 | 17:15–18:00 Discussion | 17:15–18:00 Discussion | | | |
| 17:00 | | | | | |
| 18:00 | | | | | |
| 19:00 | 19:00–20:00 Dinner | 19:00–20:00 Dinner | 19:00–20:00 Dinner | 18:30–19:20 SLS User Experience – THAA 19:20–19:40 Discussion | 19:00–20:00 Dinner |
| 20:00 | | | | 20:00–22:00 Workshop Dinner | |
| 21:00 | | | | | |
| 22:00 | | | | | |
| 23:00 | | | | | |
| 00:00 | | | | | |

IWBS2004

[PROGRAM DETAILS IWBS2004_programdetails_pdf](#) [IWBS2004_programdetails_compact_pdf](#)

Program Overview

MONDAY, 6.12.04

| Mon, 6.12.04, 1st Morning Session (MOMA) | | | Chair: L.Rivkin (PSD) |
|--|--|------------------|--|
| Time | Speaker | Session | Presentation |
| 09:00 | Opening Remarks | | |
| 09:25 | H.Tanaka (JASRI/SPring-8) | Facility Reports | Present Status of Orbit Stability at SPring-8 |
| 09:50 | T.Obina (Photon Factory KEK) | Facility Reports | Recent development in orbit stability and the feedback system at KEK Photon Factory and PF Advanced Ring |
| 10:15 | K.Hsu (National Synchrotron Radiation Research Center NSRRC) | Facility Reports | Orbit Stabilization at Taiwan Light Source |
| 10:40 | Coffee Break | | |

| Mon, 6.12.04, 2nd Morning Session (MOMB) | | | Chair: H.Tanaka (JASRI/SPring-8) |
|--|--|------------------|---|
| Time | Speaker | Session | Presentation |
| 11:00 | L.Liu (LNLS-Brazilian National Laboratory for Synchrotron Light) | Facility Reports | Orbit Stability at the Brazilian Synchrotron Light Source |
| 11:25 | R.Müller (BESSY) | Facility Reports | Orbit Stability at BESSY |
| 11:50 | D.Bulfone (Sincrotrone Trieste) | Facility Reports | Orbit Stability at ELETTRA |
| 12:15 | Discussion | | |
| 12:45 | Lunch | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| Mon, 6.12.04, 1st Afternoon Session (MOAA) | | | Chair: W.Decking (DESY) |
|--|--|------------------|---|
| Time | Speaker | Session | Presentation |
| 14:00 | G.Decker (Advanced Photon Source) | Facility Reports | Orbit Stabilization at the Advanced Photon Source |
| 14:25 | M.Böge (Paul Scherrer Institut) | Facility Reports | Orbit Stability at the SLS |
| 14:50 | C.Steier (Lawrence Berkeley National Laboratory) | Facility Reports | Recent progress at the ALS: Fast Orbit Feedback and Preparation for Top-Off |
| 15:15 | E.Plouviez (ESRF) | Facility Reports | Fast orbit correction at the ESRF |
| 15:40 | Coffee Break | | |

| Mon, 6.12.04, 2nd Afternoon Session (MOAB) | | | Chair: G.Decker (APS) |
|--|---------------------------------|------------------|--|
| Time | Speaker | Session | Presentation |
| 16:00 | A.Nadji (Synchrotron SOLEIL) | Facility Reports | STATUS REPORT ON BEAM POSITION STABILITY STUDIES AT SOLEIL |
| 16:25 | I.Martin (Diamond Light Source) | Facility Reports | Beam Orbit Stabilisation at Diamond Light Source |
| 16:50 | Discussion | | |
| 19:00 | Dinner | | |

TUESDAY, 7.12.04

| Tue, 7.12.04, 1st Morning Session (TUMA) | | | Chair: R.Müller (BESSY) |
|--|----------------------|------------------|---|
| Time | Speaker | Session | Presentation |
| 09:00 | M.Munoz (CELLS-ALBA) | Facility Reports | Report on Stability Issues at ALBA |
| 09:25 | K.Balewski (DESY) | Facility Reports | Conceptual Design of the PETRA III Orbit Feedback |
| 09:50 | J.Weninger (CERN) | Facility Reports | Orbit Stabilization at the Large Hadron Collider |
| 10:15 | Coffee Break | | |

| Tue, 7.12.04, 2nd Morning Session (TUMB) | | | Chair: D.Bulfone (Sincrotrone Trieste) |
|--|----------------------------|--------------------------|---|
| Time | Speaker | Session | Presentation |
| 10:35 | H.Tanaka (JASRI/SPring-8) | Noise Source Suppression | New Approach to Correction of COD Caused by ID parameter Change |
| 11:00 | T.Ohshima (JASRI/SPring-8) | Noise Source Suppression | Feedforward correction at injection bump error in the Spring-8 |
| 11:25 | T.Yorita (JASRI/SPring-8) | Noise Source Suppression | The optimization for the reduction of the vacuum chamber vibration via structure analysis |
| 11:50 | A.Streun (PSI) | Noise Source Suppression | Dynamic Alignment |
| 12:15 | Discussion | | |
| 12:45 | Lunch | | |

| Tue, 7.12.04, 1st Afternoon Session (TUAA) | | | Chair: V.Schlott (PSI) |
|--|--|------------------------------|--|
| Time | Speaker | Session | Presentation |
| 14:00 | V.Schlott (PSI) | Orbit Measurement/Correction | Report on the internal "SLS mini-workshop on beam stability" |
| 14:25 | R.Ursic (Instrumentation Technologies) | Orbit Measurement/Correction | Libera Electron Beam Position Processor |
| 14:50 | G.Rehm (Diamond Light Source) | Orbit Measurement/Correction | EBPMs and orbit feedback electronics at Diamond |
| 15:15 | Coffee Break | | |

| Tue, 7.12.04, 2nd Afternoon Session (TUAB) | | | Chair: V.Schlott (PSI) |
|--|-----------------------------------|------------------------------|---|
| Time | Speaker | Session | Presentation |
| 15:35 | B.Keil (Paul Scherrer Institut) | Orbit Measurement/Correction | The "Generic VME PMC Carrier Board": Status and Perspectives of a Common Digital Platform for Beam Diagnostics and Feedbacks at PSI |
| 16:00 | T.Straumann (SLAC/SSRL) | Orbit Measurement/Correction | Fast Orbit Feedback Electronics for SPEAR3 |
| 16:25 | R.Steinhausen (CERN) | Orbit Measurement/Correction | Large Scale Orbit Correction for the LHC |
| 16:50 | J.Bergoz (Bergoz Instrumentation) | Orbit Measurement/Correction | Latest developments and whats to come in beam position measurement |
| 17:15 | Discussion | | |
| 19:00 | Dinner | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

WEDNESDAY, 8.12.04

| Wed, 8.12.04 | | | Chair: N.None (NIL) |
|--------------|------------------|---------|---------------------|
| Time | Speaker | Session | Presentation |
| 09:00 | Visit of the SLS | | |
| 12:45 | Lunch at PSI | | |
| 14:00 | Visit of the SLS | | |
| 19:00 | Dinner | | |

THURSDAY, 9.12.04

| Thu, 9.12.04, 1st Morning Session (THMA) | | | Chair: E.Karantzoulis (Sincrotrone Trieste) |
|--|--|------------------------------|--|
| Time | Speaker | Session | Presentation |
| 09:00 | M.Grewe (DELTA Universität Dortmund) | Orbit Measurement/Correction | Orbit Correction under Constraints |
| 09:25 | N.Nakamura (ISSP University of Tokyo) | Orbit Measurement/Correction | Activities on the Orbit Feedback System for the Super-SOR Light Source |
| 09:50 | H.Kang (Pohang Accelerator Laboratory) | Orbit Measurement/Correction | SLOW GLOBAL ORBIT FEEDBACK AT THE PLS |
| 10:15 | T.Schilcher (Paul Scherrer Institut) | Orbit Measurement/Correction | Fast Orbit Feedback Operation at the SLS |
| 10:40 | Discussion | | |

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|-------|--------------------------|--|--|
| 11:00 | Excursion "Jungfraujoch" | | |
|-------|--------------------------|--|--|

| Thu, 9.12.04, 1st Afternoon Session (THAA) | | | Chair: R.Abela (PSI) |
|--|--|-----------------|--|
| Time | Speaker | Session | Presentation |
| 18:30 | F.Nolting (Paul Scherrer Institut) | User Experience | A users viewpoint: absorption spectroscopy at a synchrotron |
| 18:55 | C.Schulze-Briese (Swiss Light Source at PSI) | User Experience | Stable beam and good data - Experience with beam (in-) stability at the SLS protein crystallography beamline X06SA |
| 19:20 | Discussion | | |

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|-------|---|
| 20:00 | Workshop Dinner (sponsored by Instrumentation Technologies) |
|-------|---|

FRIDAY, 10.12.04

| Fri, 10.12.04, 1st Morning Session (FRMA) | | | Chair: M.Böge (PSI) |
|---|-----------------------------------|------------------------------|--|
| Time | Speaker | Session | Presentation |
| 09:00 | G.Decker (Advanced Photon Source) | Orbit Measurement/Correction | Experience with Insertion Device Photon Beam Position Monitor at the APS |
| 09:25 | A.Mueller (FZ Karlsruhe - ANKA) | Orbit Measurement/Correction | Energy Calibration and Stability of the ANKA Storage Ring |
| 09:50 | H.Hanaki (JASRI/SPring-8) | Orbit Measurement/Correction | Beam Stabilization in the SPring-8 Linac |
| 10:15 | Coffee Break | | |

| Fri, 10.12.04, 2nd Morning Session (FRMB) | | | Chair: V.Schlott (PSI) |
|---|------------------|--|--|
| Time | Speaker | Session | Presentation |
| 10:35 | R.Bakker (PSI) | Stability Requirements in 4th Generation Light Sources | FEL2004 - Beam Stability Issues at FELs |
| 11:00 | W.Decking (DESY) | Stability Requirements in 4th Generation Light Sources | Beam Stability Issues at the European XFEL |
| 11:25 | H.Duhme (Desy) | Stability Requirements in 4th Generation Light Sources | DESIGN AND TEST OF A FAST FEEDBACKSYSTEM FOR ORBIT CORRECTION AT TTF AND VUV-FEL |
| 11:50 | Discussion | | |
| 12:45 | Lunch | | |

| Fri, 10.12.04, 1st Afternoon Session (FRAA) | | | Chair: C.Steier (LBNL) |
|---|-----------------|---------|------------------------|
| Time | Speaker | Session | Presentation |
| 14:00 | Summing-Up | | |
| 14:40 | Closing Remarks | | |
| 15:00 | End of IWBS2004 | | |
| 19:00 | Dinner | | |

Alphabetical List of Oral Contributions

Alphabetical List of Oral Contributions by Session

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

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ORAL CONTRIBUTIONS BY SESSION [IWBS2004_oralsbysession_pdf](#)
[IWBS2004_oralsbysession_compact_pdf](#)

Oral Contributions

| Speaker | Session | Presentation |
|--|------------------|--|
| K.Balewski (DESY) | Facility Reports | Conceptual Design of the PETRA III Orbit Feedback |
| M.Böge (Paul Scherrer Institut) | Facility Reports | Orbit Stability at the SLS |
| D.Bulfone (Sincrotrone Trieste) | Facility Reports | Orbit Stability: Recent Activities at ELETTRA |
| G.Decker (Advanced Photon Source) | Facility Reports | Orbit Stabilization at the Advanced Photon Source |
| K.Hsu (National Synchrotron Radiation Research Center NSRRC) | Facility Reports | Orbit Stabilization at Taiwan Light Source |
| L.Liu (LNLS-Brazilian National Laboratory for Synchrotron Light) | Facility Reports | Orbit Stability at the Brazilian Synchrotron Light Source |
| I.Martin (Diamond Light Source) | Facility Reports | Beam Orbit Stabilisation at Diamond Light Source |
| R.Müller (BESSY) | Facility Reports | Orbit Stability at BESSY |
| M.Munoz (CELLS-ALBA) | Facility Reports | Report on Stability Issues at ALBA |
| A.Nadji (Synchrotron SOLEIL) | Facility Reports | STATUS REPORT ON BEAM POSITION STABILITY STUDIES AT SOLEIL |
| T.Obina (Photon Factory KEK) | Facility Reports | Recent development in orbit stability and the feedback system at KEK Photon Factory and PF Advanced Ring |
| E.Plouviez (ESRF) | Facility Reports | Fast orbit correction at the ESRF |
| C.Steier (Lawrence Berkeley National Laboratory) | Facility Reports | Recent progress at the ALS: Fast Orbit Feedback and Preparation for Top-Off |
| H.Tanaka (JASRI/SPring-8) | Facility Reports | Present Status of Orbit Stability at SPring-8 |
| J.Wenninger (CERN) | Facility Reports | Orbit Stabilization at the Large Hadron Collider |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

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|--|------------------------------|---|
| T.Ohshima (JASRI/SPring-8) | Noise Source Suppression | Feedforward correction to injection bump error in the Spring-8 |
| A.Streun (PSI) | Noise Source Suppression | Dynamic Alignment |
| H.Tanaka (JASRI/SPring-8) | Noise Source Suppression | New Approach to Correction of COD Caused by ID parameter Change |
| T.Yorita (JASRI/SPring-8) | Noise Source Suppression | The optimization for the reduction of the vacuum chamber vibration via structure analysis |
| J.Bergoz (Bergoz Instrumentation) | Orbit Measurement/Correction | Latest developments and whats to come in beam position measurement |
| G.Decker (Advanced Photon Source) | Orbit Measurement/Correction | Experience with Insertion Device Photon Beam Position Monitor at the APS |
| M.Grewe (DELTA Universität Dortmund) | Orbit Measurement/Correction | Orbit Correction under Constraints |
| H.Hanaki (JASRI/SPring-8) | Orbit Measurement/Correction | Beam Stabilization in the SPring-8 Linac |
| H.Kang (Pohang Accelerator Laboratory) | Orbit Measurement/Correction | SLOW GLOBAL ORBIT FEEDBACK AT THE PLS |
| B.Keil (Paul Scherrer Institut) | Orbit Measurement/Correction | The "Generic VME PMC Carrier Board": Status and Perspectives of a Common Digital Platform for Beam Diagnostics and Feedbacks at PSI |
| A.Mueller (FZ Karlsruhe - ANKA) | Orbit Measurement/Correction | Energy Calibration and Stability of the ANKA Storage Ring |
| N.Nakamura (ISSP University of Tokyo) | Orbit Measurement/Correction | Activities on the Orbit Feedback System for the Super-SOR Light Source |
| G.Rehm (Diamond Light Source) | Orbit Measurement/Correction | EBPMs and orbit feedback electronics at Diamond |
| T.Schilcher (Paul Scherrer Institut) | Orbit Measurement/Correction | Fast Orbit Feedback Operation at the SLS |
| V.Schlott (PSI) | Orbit Measurement/Correction | Report on the internal "SLS mini-workshop on beam stability" |
| R.Steinhausen (CERN) | Orbit Measurement/Correction | Large Scale Orbit Correction for the LHC |
| T.Straumann (SLAC/SSRL) | Orbit Measurement/Correction | Fast Orbit Feedback Electronics for SPEAR3 |
| R.Ursic (Instrumentation Technologies) | Orbit Measurement/Correction | Libera Electron Beam Position Processor |

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|--|--|--|
| R.Bakker (PSI) | Stability Requirements in 4th Generation Light Sources | FEL2004 - Beam Stability Issues at FELs |
| W.Decking (DESY) | Stability Requirements in 4th Generation Light Sources | Beam Stability Issues at the European XFEL |
| H.Duhme (Desy) | Stability Requirements in 4th Generation Light Sources | DESIGN AND TEST OF A FAST FEEDBACKSYSTEM FOR ORBIT CORRECTION AT TTF AND VUV-FEL |
| F.Nolting (Paul Scherrer Institut) | User Experience | A users viewpoint: absorption spectroscopy at a synchrotron |
| C.Schulze-Briese (Swiss Light Source at PSI) | User Experience | Stable beam and good data - Experience with beam (in-) stability at the SLS protein crystallography beamline X06SA |

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Oral Contributions by Session

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|-------------|-------------|---------|
| 02 | Rene | Bakker | PSI | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Stability Requirements in 4th Generation Light Sources | | | | | |
| Title #1: FEL2004 - Beam Stability Issues at FELs | | | | | |
| Abstract: A report on beam stability issues which have been covered at the 26th International Free Electron Laser Conference held in Trieste, Italy is given. Different FEL designs are discussed followed by a comparison of their stability requirements. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------|---------|---------|
| 03 | Klaus | Balewski | DESY | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Conceptual Design of the PETRA III Orbit Feedback | | | | | |
| Abstract: DESY has decided to rebuild its 2304 m long accelerator PETRA II into a dedicated light source called PETRA III. The new light source will operate at an energy of 6 GeV a current of 100 mA a horizontal emittance of 1 nmrad and an emittance coupling of 1%. To obtain and maintain the small emittances imposes tight tolerances on spurious dispersion and orbit quality and stability. A fast orbit feedback is necessary to achieve the required orbit stability. The conceptual layout and the basic design parameters of the system will be given in this talk. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|------------------------|---------|---------|
| 05 | Julien | Bergoz | Bergoz Instrumentation | France | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Latest developments and whats to come in beam position measurement | | | | | |
| Abstract: New developments not yet announced will be presented with prototypes performance where available. Our current R&D program will be presented and new products to expect in the next 24 months. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|------------------------|-------------|---------|
| 06 | Michael | Böge | Paul Scherrer Institut | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stability at the SLS | | | | | |
| Abstract: Top-up operation has proven to be an important prerequisite for high orbit and energy stability at the SLS. The fast global orbit feedback running in user operation since ~1 year ensures a complete decoupling of the insertion device operation up to 100 Hz. Slow (<1Hz) X-BPM feedbacks running as an integral part of the fast global orbit feedback system following a cascaded feedback scheme guarantee sub-micron stability of the photon beam positions. Several incidents related to the malfunctioning of the SLS cooling system have demonstrated how difficult it is to maintain the same high level of stability over weeks or even months if the operating conditions of the accelerator and the beamlines cannot be kept constant. | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|---------------------|---------|---------|
| 08 | Daniele | Bulfone | Sincrotrone Trieste | Italy | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stability: Recent Activities at ELETTRA | | | | | |
| Abstract: A review is given of the most recent activities aimed at improving orbit control and stability at ELETTRA. In view of a fast global orbit feedback two local feedback systems that correct the position and angle of the electron beam at the center of the ID have been installed and are in routine operation. The fast local feedback systems and their performance are presented. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|------------------------|--------------------------|---------|
| 09 | Glenn | Decker | Advanced Photon Source | United States of America | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stabilization at the Advanced Photon Source | | | | | |
| <p>Abstract: An overview of DC and AC orbit correction systems presently in use at the Advanced Photon Source will be given. This includes broadband and narrowband rf beam position monitors bending magnet and insertion device photon beam position monitors data acquisition and distribution infrastructure steering corrector magnet power supply interfaces system configuration control signal processing algorithms and the practical implementation of singular value decomposition for concurrently running DC and AC orbit correction.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |
| Oral Presentation #2: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #2: Experience with Insertion Device Photon Beam Position Monitor at the APS | | | | | |
| <p>Abstract: Following a seven-year-long effort to realign the APS storage ring in order to reduce stray radiation from the field of view of the insertion device photon beam position monitors their inclusion in DC orbit correction has made possible long term (> 48 hours) stabilization of insertion device x-ray beams to better than 500 nanoradians p-p. Compensation of residual insertion device gap-dependent systematic errors has been critical in this effort. The history of this effort and recent results will be presented.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|-------------|---------|---------|
| 10 | Winfried | Decking | DESY | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Stability Requirements in 4th Generation Light Sources | | | | | |
| Title #1: Beam Stability Issues at the European XFEL | | | | | |
| <p>Abstract: The European XFEL will provide users with x-ray radiation of unique properties in terms of brightness time structure and coherence. Beam stability issues arise both from user demands and from the stability of the SASE-FEL process itself. This issues will be reviewed and compared with achievements in 3rd generation light sources.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------|---------|---------|
| 11 | Hans | Duhme | Desy | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Stability Requirements in 4th Generation Light Sources | | | | | |
| Title #1: DESIGN AND TEST OF A FAST FEEDBACKSYSTEM FOR ORBIT CORRECTION AT TTF AND VUV-FEL | | | | | |
| <p>Abstract: To achieve self-amplified spontaneous emission (SASE) for the VUV-FEL at DESY high orbit stability is required. Feedback systems will be needed to provide orbit corrections within the bunch train. A prototype of the complete vertical feedback system has been installed in the TESLA Test Facility at DESY. The use of digital signal processing techniques led to a fast and highly flexible solution for the controller function. Additional features such as data logging and analysis allow easy adjustment of the feedback parameters to achieve the optimum performance of the system. An overview of the system will be presented as well as the results of first measurements.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|----------------------------|---------|---------|
| 12 | Marc | Grewe | DELTA Universität Dortmund | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Orbit Correction under Constraints | | | | | |
| <p>Abstract: Orbit correction for a misaligned magnet lattice or certain orbit demands accompanied by little phase advance may request orbit correctors to exceed their physical limits. A flexible concept is presented to treat such situations while obtaining the best result possible.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|----------------|---------|---------|
| 13 | Hirofumi | Hanaki | JASRI/SPring-8 | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Beam Stabilization in the SPring-8 Linac | | | | | |
| <p>Abstract: The SPring-8 storage ring has requested the injection of stable beams to realize a uniform bunch pattern in the stored beam and highly stabilized stored current for the top-up operation. Now the SPring-8 injector linac has achieved the beam energy stability of 0.01% (rms). The beam stability of the SPring-8 linac has been improved by means of reducing RF variations providing beam energy compensation and introduction of beam trajectory feedback control: Variations in the RF power and phase have been reduced by improving the voltage regulation system for the klystron modulator and by stabilizing the temperature drift of the atmosphere and cooling water in order to reduce the phase variation. A new synchronous oscillator synchronizes a beam trigger pulse and a 2856 MHz reference signal. Variation in the beam charge was reduced by this synchronizing technique; the stabilized beam loading consequently resulted in the beam energy fluctuation of 0.01% rms. A beam energy compression system (ECS) was installed to compensate for accidental energy variation and reduce the energy spread due to beam loading. The reduced energy spread enabled the high-current injection without increasing beam loss. The feedback control of steering magnets compensates long-term variations of the beam trajectory at the end of the beam transport line.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|--|---------|---------|
| 15 | Kuotung | Hsu | National Synchrotron Radiation Research Center NSRRC | Taiwan | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stabilization at Taiwan Light Source | | | | | |
| <p>Abstract: Highly orbit stability is essential to satisfied user requirements in Taiwan Light Source. Various efforts were done during last decade and orbit stability is also improved drastically. These efforts will be overviewed in this report. Activity of orbit feedback system and preparation for top-up operation will be addressed. Briefing of the facility status will be included.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------------------------|-------------|---------|
| 17 | Heung-Sik | Kang | Pohang Accelerator Laboratory | South Korea | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: SLOW GLOBAL ORBIT FEEDBACK AT THE PLS | | | | | |
| <p>Abstract: A slow global orbit feedback was developed at PLS. The feedback uses the SVD (singular value decomposition) method and the MATLAB channel access to EPICS IOCs of BPMs and correctors and the feedback speed is 4 seconds. The orbit feedback uses 22 correctors in each plane which were improved to 20-bit capability in the vertical plane and 16-bit capability in the horizontal plane. The orbit stability can be maintained below 1 micro-meter in rms in both planes for one hour and 3 micro-meter for a 12-hour operation. To reduce the orbit variation due to insertion device operation a feedforward correction is incorporated for EPU (Elliptically Polarized Undulator) with a 10 Hz correction speed. It is found that the long term orbit variation is due to the false BPM reading coming from the Bergoz BPMs nonlinear intensity dependence and the vacuum chamber motion by synchrotron radiation thermal load change.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|------------------------|-------------|---------|
| 19 | Boris | Keil | Paul Scherrer Institut | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: The "Generic VME PMC Carrier Board": Status and Perspectives of a Common Digital Platform for Beam Diagnostics and Feedbacks at PSI | | | | | |
| <p>Abstract: The "generic VME PMC Carrier board" (VPC) was developed as a common digital hardware platform for beam diagnostics and feedback systems at PSI. The core of the board consists of two Virtex2Pro FPGAs with two on-chip PPC processors each a Sharc DSP and RAM. Customized analog frontend modules for the different applications of the VPC board can be interfaced to the board via two PMC mezzanine connectors or VMEbus P0/P2 backplane connectors. The multi-gigabit fiber optic transceivers of the VPC allow the acquisition and distribution of measurement data for fast global feedbacks. An overview of present and possible future applications of the VPC board will be given such as digital BPMs (DBPMs) for the PSI proton accelerators integration of X-ray BPMs in the SLS fast orbit feedback (FOFB) and upgrade options to replace the existing SLS DBPM/FOFB system with a VPC based platform.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|--|---------|---------|
| 22 | Lin | Liu | LNLS-Brazilian National Laboratory for Synchrotron Light | Brazil | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stability at the Brazilian Synchrotron Light Source | | | | | |
| <p>Abstract: A task force has been implemented at the Brazilian Synchrotron Light Laboratory to improve the beam orbit stability in the 1.37 GeV electron storage ring. The main problems faced during this year (2004) were due to the installation of a second RF cavity in the machine. The interaction of the new cavity with the beam caused longitudinal dipole oscillations which appeared as a horizontal orbit distortion proportional to the second order dispersion function. To suppress this instability we have applied a phase modulation on the rf accelerating voltage. Other critical problem involves BPM readings which seems to be affected by the increased electromagnetic noise in the hall. A careful design for a shielding box for the electronics has been made and those are under construction.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|----------------------|----------------|---------|
| 24 | Ian | Martin | Diamond Light Source | United Kingdom | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Beam Orbit Stabilisation at Diamond Light Source | | | | | |
| <p>Abstract: Diamond Light Source is the 3rd generation 3 GeV electron synchrotron currently under construction in the UK. In order to meet the photon beam brightness and stability requirements of the user community strong restrictions are placed on the allowable motion of the electron beam. This talk will present the various active and passive measures that have been taken at Diamond Light Source in order to suppress orbit motion on both long and short timescales.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------|---------|---------|
| 26 | Roland | Müller | BESSY | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stability at BESSY | | | | | |
| <p>Abstract: Traditionally intrinsic component stability as well as perturbation source identification and suppression (like set-up modifications or feed-forward compensations) have been the preferred methods used to guarantee beam orbit stability for user operation at BESSY. Second focus of activity is the reliability of slow drift control and the high degree of beam position reproducibility maintained under frequently changed operation conditions. Along these lines improvements as well as understanding of shortcomings have been achieved since IWBS02. In addition the need for a fast orbit feedback system has become obvious due to the constant introduction of ever new noise sources as well as the requests for new demanding operation modes. As a first step a fast BPM read-out and data distribution system has been set up. Pilot experiments with this system as well as usage of the diagnostic capabilities provide us with valuable experiences.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|--------------|-----------|---------------------|---------|---------|
| 27 | Anke-Susanne | Mueller | FZ Karlsruhe - ANKA | Germany | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Energy Calibration and Stability of the ANKA Storage Ring | | | | | |
| <p>Abstract: ANKA is a synchrotron light source located at Forschungszentrum Karlsruhe Germany. In the course of daily operation the storage ring is ramped from the injection energy at 0.5 GeV to the final energy of 2.5 GeV. This causes thermally induced drifts in the bending field and therefore drifts of the beam energy following the ramp. The resulting orbit drifts have to be compensated by an automatic orbit correction program. To this ends the orbit correction algorithm changes the RF frequency to match the frequency for central quadrupole passage thereby changing the beam energy back to nominal. The accuracy of this procedure as well as its reproducibility have been checked using the method of resonant depolarisation. Longterm data logging gives the opportunity to study external influence like outside temperature. This presentation gives an overview over the studies performed at ANKA.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|-------------|---------|---------|
| 28 | Marc | Munoz | CELLS-ALBA | Spain | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Report on Stability Issues at ALBA | | | | | |
| Abstract: A short description of the measurements carried on the proposed site for ALBA is presented including a short description of the facility the vibration measurements and the geotechnical studies. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|--------------------|---------|---------|
| 29 | Amor | Nadji | Synchrotron SOLEIL | France | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: STATUS REPORT ON BEAM POSITION STABILITY STUDIES AT SOLEIL | | | | | |
| Abstract: The progress on the design to reach the best beam position stability since the last IWBS02 workshop will be summarized. The slabs of the storage ring and the experimental hall are completed. Measurements have been carried out on a long magnet-girder assembly prototype in order to check and validate the static and dynamic behaviour predicted by simulation. Measurements are being performed on a prototype of the Hydrostatic Levelling System foreseen for monitoring the vertical position long term drifts. The air-conditioning system in the storage ring tunnel has been studied with the temperature regulation criteria of $21^{\circ}\text{C} \pm 0.1^{\circ}\text{C}$ and the number of air-conditioning units and their locations have been optimised. The results on the BPM electronics prototype (LIBERA module) as well as the progress on the design of the fast orbit feedback and its interaction with the slow one will also be reported. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|--------------------------|---------|---------|
| 30 | Norio | Nakamura | ISSP University of Tokyo | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Activities on the Orbit Feedback System for the Super-SOR Light Source | | | | | |
| Abstract: Activities on the orbit feedback system for the Super-SOR project are overviewed. Design and R&D of the feedback components and subsystems such as BPM fast steering and control systems are presented. A new orbit correction method eigenvector method with constraints is introduced as an orbit correction scheme of the feedback system to unite global and local feedbacks and the result of the computer simulation for the Super-SOR ring and the experimental studies using the PF and PF-AR rings are reported. The Super-SOR project that aims at constructing a third-generation VUV and soft X-ray synchrotron radiation source in Japan is also mentioned. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|------------------------|-------------|---------|
| 31 | Frithjof | Nolting | Paul Scherrer Institut | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: User Experience | | | | | |
| Title #1: A users viewpoint: absorption spectroscopy at a synchrotron | | | | | |
| Abstract: X-ray absorption spectroscopy is a powerful tool for the investigation of surfaces and interfaces. Combined with polarization control it is ideal suited for the investigation of magnetic multilayer systems. The measurements require a frequent moving of gap and shift of the insertion devices. Combined with the aim of measuring small signals this puts great demands on the insertion devices and the orbit stability. In this presentation examples of the X11MA beamline at the SLS are shown and the effect of fast and slow orbit feedback is shown. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|--------------------|---------|---------|
| 32 | Takashi | Obina | Photon Factory KEK | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Recent development in orbit stability and the feedback system at KEK Photon Factory and PF Advanced Ring | | | | | |
| Abstract: In KEK Photon Factory a test undulator to enable a swiching of the circular polarized X-ray was installed and the effect on the beam orbit was tested. We introduced a feedback system to suppress the orbit fluctuations due to the mechanical motion of the magnet arrays. In PF-AR new injection system using a pulsed quadrupole magnet was installed. Because the stored beam was not affected by this magnet we plan to use them for the top-up operation of the Photon Factory. The preliminary result with beam will be reported. | | | | | |
| Transparencies: PDF CompactPDF NoPPT SXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|----------------|---------|---------|
| 33 | Takashi | Ohshima | JASRI/SPring-8 | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Noise Source Suppression | | | | | |
| Title #1: Feedforward correction to injection bump error in the Spring-8 | | | | | |
| Abstract: Feedforward corrections for horizontal and vertical direction to compensate the injection bump error are applied at SPring-8. Two pulse magnets are used for this purpose. The power supplies for these magnets are required high output current with fast rise time. We will present details on measurement of error kicks corrector magnets and their power supplies. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------|---------|---------|
| 34 | Eric | Plouviez | ESRF | France | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Fast orbit correction at the ESRF | | | | | |
| Abstract: The suppression of the fast orbit distortions was a concern at ESRF since the beginnig of the operation. Tools implemented to reduce these distortions include fast local and global orbit feedbacks installation of vibration damping pads on the magnet girders and feedforward corrections in function of the insertion device operation. A sum up of the evolution of the orbit stability achieved over the years thanks to the implementation of these systems will be given. The last addition to this scheme is the recent upgrade of the fast global orbit feedback. We are now able to correct both the horizontal and vertical orbit in the .1 to 200 Hz range using 32 BPMs and 24 correctors in both planes. Results obtained using this new system will be presented. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|----------------------|----------------|---------|
| 35 | Guenther | Rehm | Diamond Light Source | United Kingdom | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: EBPMs and orbit feedback electronics at Diamond | | | | | |
| Abstract: An overview of the capabilities of the electron beam position system for Diamond is given. The planned technical solutions for the synchronisation data transport and feedback calculations will be detailed. Also the strategy of software development for the implementation will be outlined. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|------------------------|-------------|---------|
| 37 | Thomas | Schilcher | Paul Scherrer Institut | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Fast Orbit Feedback Operation at the SLS | | | | | |
| Abstract: A global fast orbit feedback system (FOFB) is in operation at the SLS since November 2003. It provides sub-micrometer elctron beam stability in a frequency range from 0.1 Hz - 100 Hz. In addition a slow high level feedback has been implemented at some beamlines to stabilize the photon beam at the location of their first optical elements. The performance and experiences of the FOFB will be presented as well as future upgrade and improvement plans. | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|----|------------|-----------|-------------|-------------|---------|
| 38 | Volker | Schlott | PSI | Switzerland | List |

Oral Presentation #1:

Session: Orbit Measurement/Correction

Title #1: Report on the internal "SLS mini-workshop on beam stability"

Abstract: An internal mini-workshop on beam stability was held at SLS in September 2004. It was intended to review the performance and limitations of the actual HW installations and the applied orbit correction schemes from the perspective of present and future user and operational requirements. A short summary on the main aspects will be presented including operational experience with the fast orbit feedback (FOFB) present and future user requirements as well as the status of HW installations such as digital RF BPMs photon BPMs and alignment systems.

Transparencies: PDF CompactPDF PPT NoSXI

| # | First Name | Last Name | Institution | Country | List To |
|----|------------|----------------|---------------------------|-------------|---------|
| 39 | Clemens | Schulze-Briese | Swiss Light Source at PSI | Switzerland | List |

Oral Presentation #1:

Session: User Experience

Title #1: Stable beam and good data - Experience with beam (in-) stability at the SLS protein crystallography beamline X06SA

Abstract: Besides the low divergence of undulator beams beam stability is one of the most essential advantages of 3rd generation synchrotron sources over previous sources for protein crystallography. This is due to the trend to use crystals that previously would have been discarded as being too small for data collection because the beam intensity and size allow for it. Consequently small absolute beam position changes result in significant changes of the diffracted intensities. In the presentation different parameters and their influence on data quality will be discussed and they will also be compared to intrinsic sources of noise of the experiment.

Transparencies: PDF CompactPDF NoPPT NoSXI

| # | First Name | Last Name | Institution | Country | List To |
|----|------------|-----------|---------------------------------------|--------------------------|---------|
| 40 | Christoph | Steier | Lawrence Berkeley National Laboratory | United States of America | List |

Oral Presentation #1:

Session: Facility Reports

Title #1: Recent progress at the ALS: Fast Orbit Feedback and Preparation for Top-Off

Abstract: The main improvement of the orbit stability at the ALS during the last year was achieved by the introduction of a fast global orbit feedback system for routine user operation. With this system the short term vertical orbit stability at the ALS is now in the submicron range. In addition many studies were performed together with beamline users to evaluate transients due to injection elements and minimize their amplitude in preparation for top-off. Currently the project to upgrade the injector for full energy injection and modify the radiation protection systems for top-off are under way.

Transparencies: PDF CompactPDF PPT NoSXI

| # | First Name | Last Name | Institution | Country | List To |
|----|------------|------------|-------------|-------------|---------|
| 41 | Ralph | Steinhagen | CERN | Switzerland | List |

Oral Presentation #1:

Session: Orbit Measurement/Correction

Title #1: Large Scale Orbit Correction for the LHC

Abstract: The LHC presently build at CERN is the first hadron collider that requires an orbit feedback control for safe and reliable machine operation. The feedback system consist of 1056 BPMs and 1060 CODs that cover the 27 km circumference. The present design uses a SVD based global orbit correction scheme and PID controller with Smith-Predictor extension. The central controller is implemented as a x86 based server that is connected to the BPM and COD front-ends using Gigabit Ethernet. Latencies of the network interfaces and the numerical complexity of the steering task in the central feedback controller are the identified bottlenecks of the system and controlled though network quality of service (QoS) and task scheduling. A complementary test bed has been developed that simulates the open-loop and orbit response in order to test and verify controller implementation and new control strategies.

Transparencies: PDF CompactPDF NoPPT SXI

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|-------------|--------------------------|---------|
| 42 | Till | Straumann | SLAC/SSRL | United States of America | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Fast Orbit Feedback Electronics for SPEAR3 | | | | | |
| <p>Abstract: SPEAR-3 has provisions for a orbit stabilizing feedback running at a clock rate of 4kHz. BPM data is shipped to a central processor using commercial ethernet cards in a dedicated point-to point network. The same technology is used to push corrector settings out to the power-supply controllers. A simple timing system is used for global synchronization and event distribution.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT SXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|-------------|-------------|---------|
| 43 | Andreas | Streun | PSI | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Noise Source Suppression | | | | | |
| Title #1: Dynamic Alignment | | | | | |
| <p>Abstract: The concept of dynamic alignment adds sensoric and motoric capabilities to the lattice structure in order to monitor and correct the magnet and BPM positions during operation. Dynamic alignment may include movable magnet girders and a hydrostatic levelling system as well as digital sensor systems for measurements of horizontal girder positions and BPM locations relative to girders. The potentials and problems of dynamic alignment will be discussed in general and the experiences in passive (monitoring) and active (on-line realignment) mode at SLS and other facilities will be reviewed.</p> | | | | | |
| Transparencies: PDF CompactPDF NoPPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|----------------|---------|---------|
| 44 | Hitoshi | Tanaka | JASRI/SPring-8 | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Present Status of Orbit Stability at SPring-8 | | | | | |
| <p>Abstract: We have started so called "top-up operation" at SPring-8 since May this year. It is well known that this operation keeps the thermal equilibrium of vacuum chambers the inside atmosphere of the tunnel and X-ray beam optics. However due to the peculiar condition of SPring-8 the drastic improvement has not seen on beam orbit stability. On the other hand the top-up operation reveals a new perturbation source which was buried in the noisy variation during the original non-top-up operation. We will be reporting the present status of the SPring-8 orbit stability especially focusing on the problems we are now facing to.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |
| Oral Presentation #2: | | | | | |
| Session: Noise Source Suppression | | | | | |
| Title #2: New Approach to Correction of COD Caused by ID parameter Change | | | | | |
| <p>Abstract: We have developed a scheme for precisely correcting orbit variation caused by a dipole error-field of an insertion device (ID). For the precise correction extraction of a real response i.e. beam orbit variation by a change of the ID error-field is the key. To this end over a measurement period changeable parameters during an experiment a gap and a phase of ID are periodically changed with a mirror symmetric pattern. This operation modulates the real response measured by a couple of conventional wide frequency-band detectors. The real response is thus extracted precisely by adequate averaging and filtering procedures. Furthermore the mirror symmetric pattern enables us to separately extract the orbit variation by a static error field and that by a dynamic one e.g. an induced field by the dynamical change of the ID gap or phase. We built a real time measurement system with a sampling rate of 100Hz and applied the scheme to correct the orbit variation caused by the error-field of an APPLEII type undulator installed in the SPring-8 storage ring. The obtained result shows that the developed scheme markedly improves the correction performance and can suppress the orbit variation by the ID error-field down to the level of one micron.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|------------------------------|----------|---------|
| 45 | Rok | Ursic | Instrumentation Technologies | Slovenia | List |
| Oral Presentation #1: | | | | | |
| Session: Orbit Measurement/Correction | | | | | |
| Title #1: Libera Electron Beam Position Processor | | | | | |
| <p>Abstract: Libera electron beam position processor offers unprecedented performance offering multiple measurement channels that delivering simultaneously position measurements in digital format with MHz kHz and Hz bandwidths. This all-in-one product is much more than simply a high performance beam position measuring device delivering submicron stability. Rich connectivity options and innate processing power make it a powerful feedback building block. By interconnecting multiple Libera electron beam position processors one can build a low-latency high throughput orbit feedback system without adding additional hardware. It is ideally suited for the Third and the Fourth generation light sources.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|---|------------|-----------|-------------|-------------|---------|
| 47 | Jorg | Wenninger | CERN | Switzerland | List |
| Oral Presentation #1: | | | | | |
| Session: Facility Reports | | | | | |
| Title #1: Orbit Stabilization at the Large Hadron Collider | | | | | |
| <p>Abstract: The Large Hadron Collider (LHC) under construction at CERN uses superconducting magnets to accelerate two high intensity proton beams from 450 GeV/c to 7 TeV/c where the beams are brought into collision at four interaction points. The energy stored in each beam 350 MJ exceeds by more than 2 orders of magnitude the levels of existing hadron machines. To safely and efficiently operate the LHC the orbit of both beams must be stabilized during all operational phases from injection to collisions. Stabilization constraints are particularly tight around the collimators that must intercept with high efficiency particles that drift to large amplitudes to prevent quenches of the superconducting magnets. For this reason the LHC will be the first hadron collider where a real-time orbit feedback is foreseen to stabilize the beams. This presentation will give an overview of the boundary conditions expected orbit perturbances and requirements for orbit stabilization at the LHC. Strategies for the design of the feedback system will be discussed.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

| # | First Name | Last Name | Institution | Country | List To |
|--|------------|-----------|----------------|---------|---------|
| 49 | Tetsuhiko | Yorita | JASRI/SPring-8 | Japan | List |
| Oral Presentation #1: | | | | | |
| Session: Noise Source Suppression | | | | | |
| Title #1: The optimization for the reduction of the vacuum chamber vibration via structure analysis | | | | | |
| <p>Abstract: As we have reported in previous IWBS we have found that the vibration of Al chambers inside the Q magnets due to the cooling water flow makes beam orbit instability and we have succeeded to reduce them by adding chamber supports and modifying the water flow route. But the chamber vibration is still main source of beam instability in fast frequency region up to 200 Hz. In order to reduce this vibration further in the most optimized way we have established the method of optimization by means of computer aided engineering especially for 3D structure analysis.</p> | | | | | |
| Transparencies: PDF CompactPDF PPT NoSXI | | | | | |

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3rd International Workshop on Beam Orbit Stabilization - IWBS2004

IWBS2004

DOWNLOAD FOR PDAS IWBS2004_download_for_pdas_pdf
IWBS2004_download_for_pdas_compact_pdf

The IWBS2004 program (+ other information) is available in *iSilo*, 4.01 document format, suitable for Palm OS® PDA, Pocket PC PDA, Windows® CE Handheld PC and Windows® computer.

The *iSilo*, document reader is required for viewing. This PDA file is updated hourly to reflect recent information.

The PDA file contains the following information (see also the *iSiloX*, conversion list file iwbs2004.ixl in *.ixl* format):

- Page #1: <http://iwbs2004.web.psi.ch/program/?forprint>
- Page #2: <http://iwbs2004.web.psi.ch/program/programdetails.html?forprint>
- Page #3: <http://iwbs2004.web.psi.ch/program/oralsbysession.html?forprint>
- Page #4: <http://iwbs2004.web.psi.ch/program/orals.html?forprint>
- Page #5: <http://iwbs2004.web.psi.ch/support/?forprint>
- Page #6: <http://iwbs2004.web.psi.ch/accommodation/?forprint>
- Page #7: <http://iwbs2004.web.psi.ch/participants/?forprint>
- Page #8+: Additional pages referenced by pages #1-7

Download PDA file **iwbs2004.pdb** in PDB format

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IWBS2004

SUPPORT IWBS2004_support_pdf IWBS2004_support_compact_pdf

Networking environment:

General:

- A wireless network (WLAN) will be set up for use by the workshop participants.
- Connections to the Ethernet based network (LAN) are possible through publicly accessible Ethernet sockets.
- 3 laptops (Windows XP) will be set up for general use by the workshop participants. These laptops will be connected to the LAN.

LAN (10/100 Mbps Ethernet) / WLAN (11/54 Mbps IEEE 802.11b/g):

- provider: PSI
- subnet-mask: 255.255.255.0
- broadcast: 192.168.0.255
- network: 192.168.0.0 (class C)
- gateway: 192.168.0.1
- wlan-channel: 5
- wlan-ssid: iwbs2004
- wlan-security: none
- domain-name: iwbs
- domain-name-servers: 192.168.0.1
- WLAN Router Configuration (reachable at the workshop only and password protected)

WAN (10/100 Mbps Ethernet):

- provider: Hotel Kirchbühl
- subnet-mask: 255.255.255.0
- broadcast: 10.0.0.255
- network: 10.0.0.0 (class C)
- gateway: 10.0.0.22

Internet (ADSL-I, 600 (downstream) / 100 (upstream) kbps):

- provider: bluewin
- contact: TUCOM computer
- domain-name: bluewin.ch
- domain-name-servers: 195.186.1.111 (primary), 195.186.1.110 (secondary)
- smtp-server: mail.bluewin.ch
- news-server: news.bluewin.ch

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

Printing:

- Printer name: XeroxPhaser8200DP
- Printer queue: XeroxPhaser8200DP
- Printer specifications of Xerox Phaser 8200DP (PPD file)
- Print server: PC3050
- IP address: 192.168.0.10 (PC3050)
- Setup:
 - **Linux** with RedHat print manager: Queue Type "LPD" / Printer Server Address 192.168.0.10 / Printer Queue Name XeroxPhaser8200DP / Select *Generic Postscript Printer*
 - **Linux** with RLPR package: `rlpr -PXeroxPhaser8200DP@192.168.0.10 <filename>`
Optional double sided print with phaser8200duplex script: `cat <PS filename> | phaser8200duplex <Book or Calendar> | rlpr -PXeroxPhaser8200DP@192.168.0.10`**Windows:** setup Network Printer \\PC3050\XeroxPhaser8200DP (if you are asked to login, specify the user "iwbs2004" and password "iwbs2004").
 - **Mac:** IP Printing / Printer Type LPD/LPR / Printer address 192.168.0.10 / Queue Name: XeroxPhaser8200DP

File Server:

- /software (read only)
- /exchange (all workshop participants have read and write access). This folder is supposed to be used to transfer electronic presentations to the presentation laptops
- Setup:
 - **Linux:** use our special IWBS file server mount script iwbsmount (and iwbsumount to unmount). First download these scripts (save as...) to /usr/local/bin on your laptop. Change the file permission as follows: `chmod 755 /usr/local/bin/iwbsmount` and `chmod 755 /usr/local/bin/iwbsumount`. Type `iwbsmount` and after the successful connection to the fileserver you will find /iwbs2004/software and /iwbs2004/exchange on your laptop.
 - **Windows:** connect to \\pc3050\software and \\pc3050\exchange as user "iwbs2004" and password "iwbs2004"
 - **Mac:** connect with `smb://iwbs2004@192.168.0.10/software` and `smb://iwbs2004@192.168.0.10/exchange` using the password "iwbs2004".

Presentation environment:

Presentation Setup:

- **1 beamer (plus 1 spare) for electronic presentations**
- **1 overhead projector for transparency based presentations**
- **2 big presentation silver screens**
- **2 presentation laptops running Windows XP with installations of Microsoft Office XP, OpenOffice.org 1.1.3 and Adobe Reader 6.0 (One laptop is in use while the other one is being prepared for the next presentation and vice versa)**
- **1 VGA signal switch**
- **Powerful green laser pointer**
- **Wireless "slide remote control"**

- **Electronic "Speaker Timer"**
- **2 spare USB memory sticks**

Upload of Presentations at the Workshop (two possibilities):

- Upload your presentation to both presentation laptops by means of a USB memory stick before the session starts.
- Copy your presentation from your own laptop to the file server \\pc3050\exchange (see above). Then you can either download your presentation from the fileserver to both presentation laptops onto the local hard disks (preferred way of uploading) or you run your presentation via the network from the file server.

Important Information for Speakers:

Presentation:

- There is no computer running a presentation on "stage". Your presentation runs on one of the two laptops (Windows XP) on the Chairman's desk.
- Upload your presentation to both presentation laptops by means of a USB memory stick before the session starts (see above).
- Once the Chairman has started your electronic presentation you will have full control over your presentation with a keyboard and a mouse on "stage".
- Additionally we will provide a simple and easy to use wireless "slide remote control" with two buttons (one slide backward / one slide forward).
- During your presentation the Chairman can help you "online" if you have a problem with your presentation. He/She has parallel access to your presentation.
- More information about the presentation setup can be found here: Instructions for Speakers and simplified schematic).

Timing:

- We will provide the so called "Speaker Timer". This timer allows you to manage your remaining presentation time.
- The Chairman sets up the time (in minutes) and controls the timer with his mouse and keyboard.
- Your screen shows the minutes remaining together with a horizontal bar.

Important Information for Chairmen:

Presentation:

- The presentations run on the laptops on the Chairman's desk. The next presentation can be prepared by the Chairman on the other laptop while the first presentation is running. After the first presentation has finished, the Chairman switches to the other laptop by pressing the button on the VGA switch box. (More information about the presentation setup can be found here: Instructions for Chairman and simplified schematic).
- The Chairman needs to make sure that all presentations are available on both presentation laptops (preferred) or on the fileserver (see above) before the session starts.

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

Timing:

- The Chairman operates the "Speaker Timer". He sets up the time (in minutes) and controls the timer with his mouse and keyboard.

Links to useful software:

- Multi platform:
 - OpenOffice.org - Home page
 - Adobe Reader - Download
 - Mozilla - 1.x home page
- Linux:
 - RLPR - Remote printing made easier (Local: RPM/TGZ for RedHat 7.x (Built from SRPM))
 - phaser8200duplex - Duplex printing on Phaser 8200DP
- Windows:
 - PuTTY - A Free Telnet/SSH Client (Local: ZIP for Windows 95, 98, ME, NT, 2000, XP)
 - TTSSH - Enhanced Telnet/SSH2 Client (Local: ZIP for Windows 2000, XP)
 - WinSCP - Freeware SFTP and SCP client for Windows (Local: EXE for Windows 2000, XP)
 - OpenOffice.org 1.1.3 (Local: EXE for Windows 98, ME, NT with Service Pack 6 or higher, 2000 or XP)
 - Adobe Reader 6.0 (Local: EXE for Windows XP)
 - Mozilla Firefox (Local: EXE for Windows 98, 98SE, ME, NT 4.0, 2000, XP)
 - LevelOne WPC-0300 WLAN PCMCIA-Adapter (Local: Documentation & Drivers for Windows 98, ME, 2000, XP)
 - LINKSYS Wireless Ethernet Bridge 2.4 GHz 802.11b Configuration Software
 - NetStumbler v0.4.0 (active WLAN Scanner Software) Release Notes (Local: EXE for Windows 2000, XP)
- Misc:
 - PPD file - Xerox Phaser 8200DP

Maintained by Martin Heiniger (PSI) Last update December 15, 2004 10:12 CET

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IWBS2004

[ACCOMMODATION IWBS2004_accommodation_txt IWBS2004_accommodation_pdf IWBS2004_accommodation_compact_pdf IWBS2004_accommodation_doc](#)

ACCOMMODATION

Grindelwald

Elevation 1090 m

Grindelwald is known as the glacier village for its proximity to the Alpine wonderland of eternal ice and snow. Eiger, Mönch and Jungfrau (Ogre, Monk and Virgin), three appropriately fanciful names for peaks of mountaineering legend. The impressive backdrop of the world-famous snow-capped mountains are like a stage setting for Grindelwald.

Conference Venue / Accommodation

[Hotel Kirchbühl](#)

[CH-3818 Grindelwald](#)

[SWITZERLAND](#)

The workshop takes place at the Hotel Kirchbühl, one of the many first class hotels in Grindelwald. Participants will be accommodated in the same hotel. The Hotel Kirchbühl lies on a sunny and quiet hill with a marvellous view of the surrounding mountains.

Registration

Registration for the workshop and the hotel accommodation is handled by:

[Marlen Bugmann](#)

Phone: +41 56 310 31 28

[Paul Scherrer Institut](#)

Fax: +41 56 310 31 51

[CH-5232 Villigen](#)

Email: iwbs2004-secretariat@psi.ch

[SWITZERLAND](#)

Participants are asked to register through the web:

3rd International Workshop on Beam Orbit Stabilization - IWBS2004

<http://iwbs2004.web.psi.ch/registration/>

Deadline: November 1, 2004

Prices

Prices from December 6 – 10, 2004

The room prices for the period of the workshop include full board (breakfast, lunch, dinner, coffee breaks, VAT and taxes inclusive). Drinks have to be paid by the participants. All rooms are equipped with a bath or a shower, toilet, hairdryer, Radio, TV, minibar, phone and a safe.

Room single occupancy CHF 240.00 / per day

Room double occupancy CHF 185.00 / per day / person

Hotel apartment CHF 185.00 / per day / person

Apartments are in a separate house

Participants may use the sauna, steam bath and the whirl pool of the hotel as well as the public swimming pool and the outdoor ice skating of Grindelwald free of charge.

An excursion to PSI and the workshop dinner are included in the prices.

Prices for additional accommodation before or after the workshop

Single room CHF 155.00 / per day (incl. breakfast)

Double room CHF 100.00 / per day/person (incl. breakfast)

Hotel apartment CHF 100.00 / per day/person (incl. breakfast)

Apartments are in a separate house

Additional CHF 38.00 / per day / person for half-board

Payment

Accommodation including full board is to be paid at the Hotel Kirchbühl. Payment at the Hotel Kirchbühl can be made by credit card (VISA, Mastercard, Diners Club) or in cash (Swiss Francs).

Cancellation

Any changes and cancellations must be communicated in writing to PSI.

Meals

Vegetarian meals will be served on request. Please mention your request in the registration form.

Currency

The Swiss currency is the Swiss Franc, written CHF. Shops accept major credit cards. Cash dispenser machines are located next to many banks. Currency can be exchanged at banks and at every major railway station throughout the day.

Travel

By plane

The main entry points for international flights are Zürich, Geneva and Basel. The airports are well connected with fast trains. The train stations at Zürich and Geneva Airport are located at the airport terminal itself and can be reached within a couple of minutes after exiting customs. Basel EuroAirport is served by shuttle bus from Basel SBB main station. Please be aware that a taxi from one of the airports to Grindelwald would cost several hundred Swiss Francs !

By train

Zürich Airport – Grindelwald 3 ½ h / Geneva Airport – Grindelwald 4 h

Trains are a popular and convenient way to travel in Switzerland. Grindelwald can easily be reached by train. Take a train to Interlaken Ost, from there you get on the train to Grindelwald / Wengen. The train is clearly marked in two sections, the back half goes to Grindelwald, the front section goes to Wengen. Make sure that you are in the right section!

Shuttle Bus Grindelwald train station – Hotel Kirchbühl

Participants who arrive by train at Grindelwald station may use the special phone at the station to call the shuttle bus of the Hotel Kirchbühl. The hotel bus will pick up participants and bring them directly to the hotel.

Insurance, Liability

PSI does not accept liability for individual medical, travel or personal insurance, and workshop participants are strongly advised to take out their own personal insurance policies. There is no state health service in Switzerland and all treatment must be paid for.

Climate

Snowfall and cold temperature is not unusual for the beginning of December, average day temperature is approximately 0° C, and it may drop to below 0° C at night.

Social Program

Workshop Dinner, Thursday, December 9, 2004

A typical Swiss dinner, Cheese Fondue, will be organized on Thursday evening.

Excursions

Swiss Light Source - Paul Scherrer Institut, Villigen

Jungfrauoch – Top of Europe

On Thursday, December 9, 2004 we will organize a visit to the Jungfrauoch – Top of Europe (Train Ticket Grindelwald-Jungfrauoch: CHF 40.00 / per person).

The unique trip by modern cogwheel starts at Grindelwald and takes you to Kleine Scheidegg, at the foot of the notorious Eiger North Wall. From here the Jungfrau Railway climbs to the Eiger Glacier Station and continues through the Eiger tunnel, to the Eigerwand and Eismeer stations. At the top of Europe you will enjoy some spectacular sightseeing in the heart of a glorious glacier world. Just on the Jungfrauoch begins the Great Aletsch Glacier, at 22 km the longest ice-stream in the Alps.

Attractions on the Jungfrauoch:

- Visit at the High Alpine Research Institute
- Ice Palace
- Ice Gateway
- Sphinx observation terrace

- Plateau with hikes in the eternal snow
- “Top of Europe” Glacier Restaurant

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3rd International Workshop on Beam Orbit Stabilization - IWBS2004

IWBS2004

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3rd International Workshop on Beam Orbit Stabilization 2004

December 6-10, 2004,

Hotel Kirchbühl****, Grindelwald, SWITZERLAND

Eiger_view

Dear Colleague,

Thank you for signing up for IWBS2004 !-)

Program

The more or less finalized program is now available at:

<http://iwbs2004.web.psi.ch/> .

A PDF version can be downloaded specifying the URL:

http://iwbs2004.web.psi.ch/documents/IWBS2004_program.pdf .

There are still some abstracts missing and thus we would like to take the opportunity to encourage speakers who have not submitted an abstract yet to submit their abstract utilizing the online registration form:

<http://iwbs2004.web.psi.ch/registration/#edit> .

Presentation

As you probably already have noticed we scheduled all talks to have a maximum length of 20 minutes plus 5 minutes discussion. You don't have to use up all your time which then would leave more room for discussions. Please try to focus on a few interesting topics in your contribution. This comment especially applies to the "Facility Reports" sessions where we potentially go the risk of replication.

For details on how the sessions are technically organized and which presentation equipment is available we would like to direct you to our support pages:

<http://iwbs2004.web.psi.ch/support/> .

Registration

Registration will be possible on December, 5 and throughout the workshop.

Please be prepared to pay **CHF 40.00 per person in cash** for the train ticket Grindelwald-Jungfrauoch at registration time if you have signed up for the visit of the "High Altitude Research Station Jungfrauoch".

We will organize a little "ice-breaker" reception on December, 5 in the late afternoon in order to welcome you to Grindelwald :-)

Cancellation

If you are not able to attend IWBS2004 please inform us before:

November, 27

since we have to make the definitive hotel reservations until the end of this week. Expect some cancellation fee to be paid to the hotel after November, 27.

Have a save trip to Switzerland :-)

See you soon,

Signature

Michael Böge

Send mail to Iwbs2004-participants mailing list
Browse the [Iwbs2004-participants](#) Archives

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3rd International Workshop on Beam Orbit Stabilization 2004

December 6-10, 2004,

Hotel Kirchbühl****, Grindelwald, SWITZERLAND

Mountain_Pinhole

Dear Colleague,

Thank you for attending and contributing to IWBS2004. Your contribution made this workshop a success ! I was pleased to see a creative atmosphere evolving which cannot be guaranteed by any workshop organizer ... ;-)

- You may have noticed that all talks have been published under:
<http://iwbs2004.web.psi.ch/program/orals.html>

Please have a look @ your contribution(s) and tell me if you are not satisfied with the published versions (.pdf,.ppt,.sxi). You can upload updates at any time utilizing the CGI:

<http://iwbs2004.web.psi.ch/cgi-bin/uplpr>

An archive file in ZIP format (~120 Mb !):

http://iwbs2004.web.psi.ch/documents/IWBS2004_all_presentations_pdf.zip
contains PDF representations of all contributions received so far.

- Have a look @ the picture galleries:
<http://iwbs2004.web.psi.ch/pictures/gallery/>
<http://iwbs2004.web.psi.ch/pictures/gallery/Martin/>
<http://iwbs2004.web.psi.ch/pictures/gallery/Contrib/>
some of the pictures are quite entertaining ;-)

You can upload your own pictures to the pictures download area:

<http://iwbs2004.web.psi.ch/pictures/download/> (updated hourly)

using the CGI:

<http://iwbs2004.web.psi.ch/cgi-bin/uplpc>

Many people have asked for the snapshot of the mountain "pin hole" spotted on December, 10:

<http://iwbs2004.web.psi.ch/pictures/download/DSCN3059.JPG>

- We are intending to publish the contents of the IWBS2004 website on CD-ROM in January 2005.

Season's Greetings from Switzerland,

Signature

Michael Böge

Send mail to [Iwbs2004-participants mailing list](#)
Browse the [Iwbs2004-participants Archives](#)

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PARTICIPANTS IWBS2004_participants_pdf IWBS2004_participants_compact_pdf

| # | First Name | Last Name | Institution | Country | Oral To |
|----|--------------|--------------|--|--------------------------|---------|
| 01 | Rafael | Abela | Paul Scherrer Institut | Switzerland | NoOral |
| 02 | Rene | Bakker | PSI | Switzerland | Oral |
| 03 | Klaus | Balewski | DESY | Germany | Oral |
| 04 | Johan | Bengtsson | Brookhaven National Lab | United States of America | NoOral |
| 05 | Julien | Bergoz | Bergoz Instrumentation | France | Oral |
| 06 | Michael | Böge | Paul Scherrer Institut | Switzerland | Oral |
| 07 | Marlen | Bugmann | Paul Scherrer Institut | Switzerland | NoOral |
| 08 | Daniele | Bulfone | Sincrotrone Trieste | Italy | Oral |
| 09 | Glenn | Decker | Advanced Photon Source | United States of America | Oral |
| 10 | Winfried | Decking | DESY | Germany | Oral |
| 11 | Hans | Duhme | Desy | Germany | Oral |
| 12 | Marc | Grewe | DELTA Universität Dortmund | Germany | Oral |
| 13 | Hirofumi | Hanaki | JASRI/SPring-8 | Japan | Oral |
| 14 | Martin | Heiniger | Paul Scherrer Institut | Switzerland | NoOral |
| 15 | Kuotung | Hsu | National Synchrotron Radiation Research Center NSRRC | Taiwan | Oral |
| 16 | Steven | Hunt | Private Participant | Switzerland | NoOral |
| 17 | Heung-Sik | Kang | Pohang Accelerator Laboratory | South Korea | Oral |
| 18 | Emanuel | Karantzoulis | Sincrotrone Trieste | Italy | NoOral |
| 19 | Boris | Keil | Paul Scherrer Institut | Switzerland | Oral |
| 20 | Jens | Klute | DESY | Germany | NoOral |
| 21 | Igor | Krupchenkov | DESY | Germany | NoOral |
| 22 | Lin | Liu | LNLS-Brazilian National Laboratory for Synchrotron Light | Brazil | Oral |
| 23 | Marco | Lonza | Sincrotrone Trieste | Italy | NoOral |
| 24 | Ian | Martin | Diamond Light Source | United Kingdom | Oral |
| 25 | David | Müller | Supercomputing Systems | Switzerland | NoOral |
| 26 | Roland | Müller | BESSY | Germany | Oral |
| 27 | Anke-Susanne | Mueller | FZ Karlsruhe - ANKA | Germany | Oral |
| 28 | Marc | Munoz | CELLS-ALBA | Spain | Oral |

| | | | | | |
|----|-----------|----------------|---------------------------------------|--------------------------|--------|
| 29 | Amor | Nadji | Synchrotron SOLEIL | France | Oral |
| 30 | Norio | Nakamura | ISSP University of Tokyo | Japan | Oral |
| 31 | Frithjof | Nolting | Paul Scherrer Institut | Switzerland | Oral |
| 32 | Takashi | Obina | Photon Factory KEK | Japan | Oral |
| 33 | Takashi | Ohshima | JASRI/SPring-8 | Japan | Oral |
| 34 | Eric | Plouviez | ESRF | France | Oral |
| 35 | Guenther | Rehm | Diamond Light Source | United Kingdom | Oral |
| 36 | Leonid | Rivkin | PSI | Switzerland | NoOral |
| 37 | Thomas | Schilcher | Paul Scherrer Institut | Switzerland | Oral |
| 38 | Volker | Schlott | PSI | Switzerland | Oral |
| 39 | Clemens | Schulze-Briese | Swiss Light Source at PSI | Switzerland | Oral |
| 40 | Christoph | Steier | Lawrence Berkeley National Laboratory | United States of America | Oral |
| 41 | Ralph | Steinhagen | CERN | Switzerland | Oral |
| 42 | Till | Straumann | SLAC/SSRL | United States of America | Oral |
| 43 | Andreas | Streun | PSI | Switzerland | Oral |
| 44 | Hitoshi | Tanaka | JASRI/SPring-8 | Japan | Oral |
| 45 | Rok | Ursic | Instrumentation Technologies | Slovenia | Oral |
| 46 | Isa | Uzun | Diamond Light Source Ltd. | United Kingdom | NoOral |
| 47 | Jorg | Wenninger | CERN | Switzerland | Oral |
| 48 | Peter | Wiegand | UGS Schweiz | Switzerland | NoOral |
| 49 | Tetsuhiko | Yorita | JASRI/SPring-8 | Japan | Oral |

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