

PAUL SCHERRER INSTITUT



Sima Baymani :: Head of Section Control Systems :: Paul Scherrer Institute

IT Quartalsinfo – Controls update

23.2.2023

Today's agenda



- Controls overview and intro
- Controls contacts
- Controls in numbers
- Ongoing activities

Controls at the Division Level

Research Committee	Prof. Dr. Marco Stampanoni
Human Resources Management	Karsten Bugmann
Center for Proton Therapy	Prof. Dr. Damien Weber

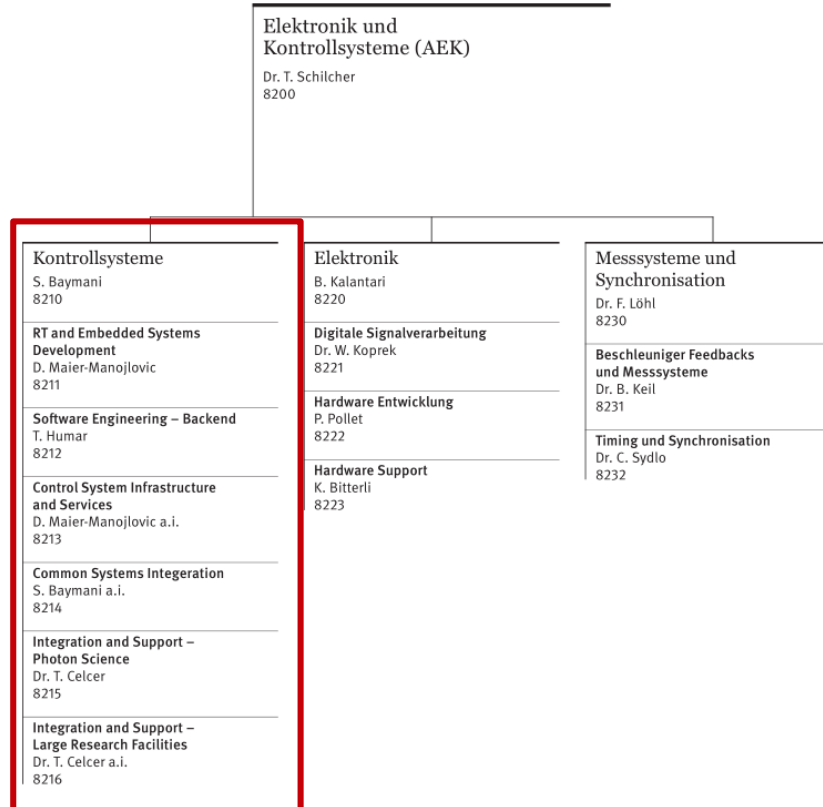
Director:
Prof. Dr. Christian Rüegg

Members of the board of directors:
Prof. Dr. Gabriel Aepli*
Dr. Peter Allenspach
Prof. Dr. Andreas Pautz
Prof. Dr. Gebhard F. X. Schertler
Prof. Dr. Thomas J. Schmidt
Prof. Dr. Mike Seidel
Dr. Thierry Strässle*

Directorate Support	Dr. Thierry Strässle
Human Resources Management	Karsten Bugmann
Safety	Dr. Werner Roser
Communications	Dr. Mirjam van Daalen
Science	Dr. Ines Günther-Leopold Dr. Michèle Erat
Finance and Administrative Services	Dr. Frank Behner
Technology Transfer	John Millard



Controls at the Department Level



Controls Internal Organization

Customer facing
– first line support

8216
Integration and
Support Large
Research Facilities

8215
Integration and
Support Photon
Science

Core development
– unify, streamline

8211
Real Time and Embedded
Systems Development

8212
Software Engineering - Backend

8213
Control system Infrastructure and
Services

8214
Common Systems Integration

GFA

AIT

AWI

PSD

AEK

AIT

AWI

PSD/GFA

Our Stakeholders and Collaborators

PSD - SLS

Debye, IR, s-TOMCAT, i-TOMCAT, PEARL, ADRESS, VUV, MS, μ XAS, FEMTO, PXIII, PXI, PolLux, nanoXAS, XTREME, Phoenix, SIS, XIL, SuperXAS, PXII, SIM, RESOXS, cSAX, Insertion Devices, Optics, Diagnostics

PSI-
PROJ's
SLS2,
IMPACT,
ESUp

ENE

Controls

AEK

AWI

AIT

PSD - SF

Alvra, Bernina, Cristallina, Maloja, Furka, Optics, IDs/Undulators/Dechirpers, Photon Diagnostics, Gun Laser, Pump Laser

GFA

e-Instrumentation(x2), e-Dynamik(x2), p-Instrumentation, p-Dynamik, OP-HIPA, OP-Proscan, OP-SLS, OP-SF, BPMs, Vacuum, Power Supplies, Pulsed Magnets, RF(x3), Timing&sync, Cyklotrontech

ZPT
G1, G2,
G3,
Optis

LOG
Cryo,
PLCs

Controls Base Level Services

Tools

Major users:
Controls,
OP, BLs,
ESs

EPICS

1000's of
IOCs in 4
facilities, 20+
HW-
architectures

UI libs

Major
users: OP,
BLs, ESs,
Exp Grps

Cameras

250 cameras
across 3 facilities
Major users: SLS -
BL/Diag/RF
SF -
ES/Diag/Las

DAQ Backend*

Major users:
BLs, Ess, Diag

OS provisioning

100's of systems
across 4 facilities,
5+18 boot PCs +
1000's new
systems

EPICS Drivers

200+ for 3
different OS

Retrieval

Major users:
RF, Diag
BD, OP
GLS, S
ESs, Opt

Motion

Major
users: BLs,
ESs,
Diagnos

Infra*

Major users:
OP, Exp Grps,
PSDd

Pipelines

Major users:
BLs, ESs,
Diag

Archiver

10 installations
for 5 facilities
Major users: OP,
RF, GLS, ESI,
Cryo, SF-ESs,
SLS-BLs

Data/Image Buffers

Major users: OP,
RF, GLS, SF-ESs,
SLS-BLs

Timing*

4 facilities
Major users:
RF, diag, laser,
ESs, magnets,
BLs

- <https://intranet.psi.ch/en/controls> (WIP)
- <https://intranet.psi.ch/en/controls/sls-beamlines-controls-contacts>
- <https://intranet.psi.ch/en/controls/swissfel-photon-science-psd-controls-contacts>
- <https://intranet.psi.ch/en/controls/large-research-facilities-gfa-controls-contacts>
- <https://intranet.psi.ch/en/controls/controls-baseline-services-contact-list>

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PSI Intranet Home > Controls

25 April 2023

Controls Home Page

Controls Contacts

- SLS Beamline & PSD Support
- SwissFEL Photon Science (PSD) Support
- Large Research Facilities (GFA) expert groups Support
- Baseline Services Controls Contacts

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PSI Intranet Home > Controls > Controls Baseline Services Contact List

SimaoIhoda Baymani | 25 August 2023

Baseline Services Controls Contacts

Baseline Services Controls Contacts

Service	Primary contact	Secondary contact
Motion	Anders Sandström (ECMC, SLS 2)	Your ma
	Valery Ovinnikov (TwinCAT, general motion, radiation hard motion)	Thierry
		Draguti SLS 2)

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PSI Intranet Home > Controls > SLS Beamlines Controls Contacts

Alvin Samuel Acerbo | 27 September 2022

SLS Beamlines Controls Contacts

Sector	Beamline	Beamline Scientist	Beamline Technician / Engineer	Controls Contact
X01DA	Debye ↗	Adam Clark	Stephan Hitz	Alvin Acerbo
X01DC	IR ↗	Guy Matmon ↗	/	LukaDebenjak
X02DA	s-TOMCAT ↗	Marco Stampanoni ↗	Gordan Mikuljan ↗ / Philipp	TineCelcer

Controls in Numbers: Operational Infrastructure

- 6(+1) Facilities (Cryo, ESI, HIPA, Proscan, SwissFEL, SLS(2))
- 28 Beamline/Endstation Subnets
- 477 VM's on GFA cluster

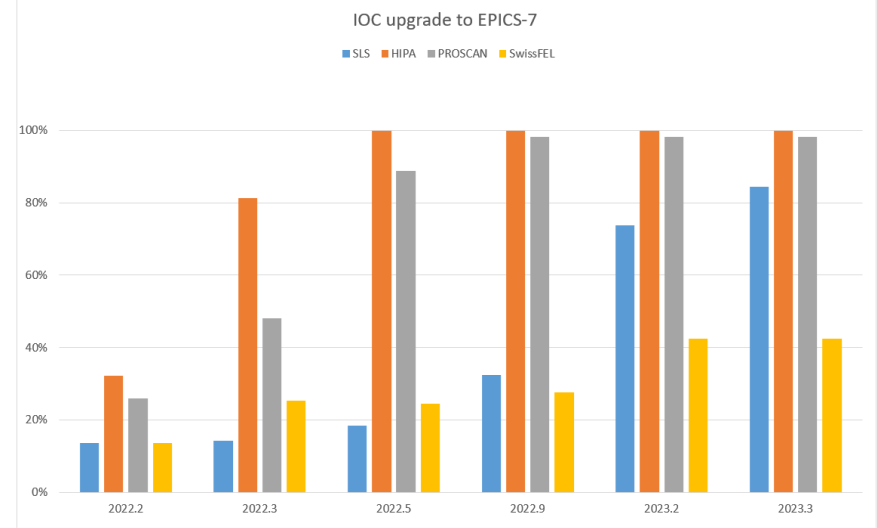
- 657 RHEL7 systems
- 63 RHEL8 systems (ESI platform IOC's already migrated)

- 41 WinSRV2016 systems (39 CamSRV, 2 Beckhoff Twincat)
- 18 WinSRV2019 systems (13 CamSRV, 5 Beckhoff TwinCat)
- 7 Win7/Win10 desktop systems (not ideal) (4 MX, 2 TOMCAT, 1 test)

Controls in Numbers: EPICS 7 at PSI

- Major endeavor to migrate from EPICS 3.14 to EPICS 7 across all facilities (EPICS base, drivers etc)
- In total 1191 of 1995 IOCs (60%) are upgraded to EPICS 7
- EPICS 7 will be the only version used after the SLS 2 Dark Time
- New: 107 SF PowerBrick IOCs migrated! *SF = 51% migrated*

SLS	HIPA	PROSCAN	SwissFEL
84%	100%	98%	42%



Slide: E.Zimoch. Numbers are provided by D. Zimoch after each SLS shutdown

Ongoing Activities (Selection)

- Finalize transition to EPICS 7
- Encourage and support RHEL8 migration
- Prepare for RHEL9 impact
- General life cycle management
- Prepare for SLS2 (steep ramp up in 2024)
- Increase monitoring of our systems for preventative and proactive measures
- Unify backend services (archiver, data and image buffer backends into one)

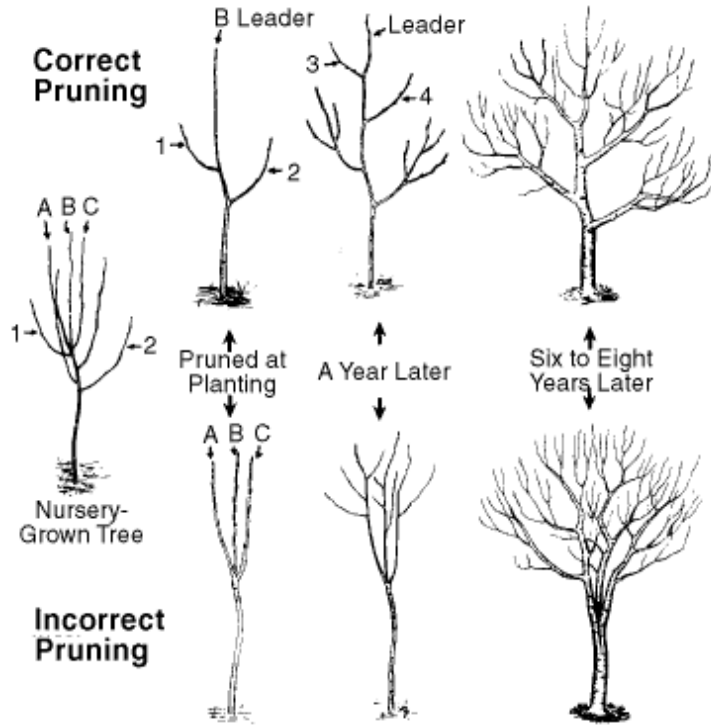
- Recruitment
- 2022: 4 vacancies, 2 retirements
- 2023: 4 positions filled, 2 remain
- 2024: +3 retirements



Major loss of knowledge and work velocity

- **Seek strategic collaboration and partnership with AIT and AWI, increase exchange**

Pruning Policy – Controls' Priorities



- 1) Running facilities, including beamlines/endstations (as-is)
- 2) Deliver on PSI **committed** projects: SLS 2, IMPACT
- 3) Everything else, **even split** between:
 - Deliver on already **committed** needs
 - Internal maintenance and development for **long term sustainability and benefit for everyone**
- 4) Heavily **reduced commitment to new requests** – we need to find a sustainable balance

Goal: a sustainable work load

Questions?