

PLC Based Control Systems WORKSHOP

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CERN



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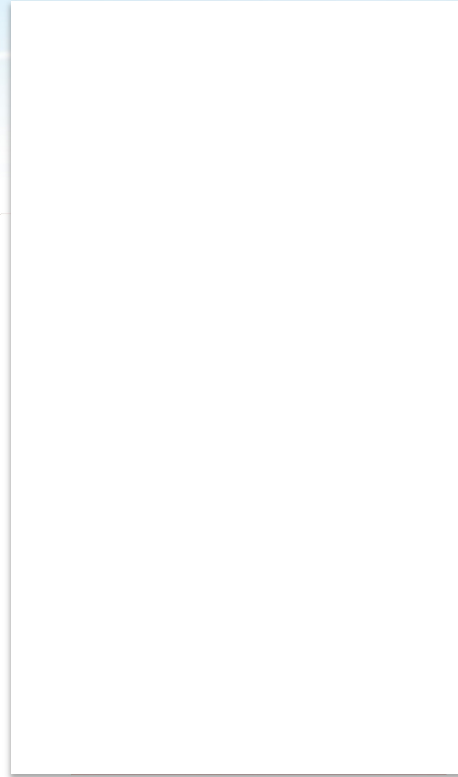
16th International Conference on
Accelerator and Large Experimental
Physics Control Systems

ICALEPCS 2017 Workshop: PLC based control systems

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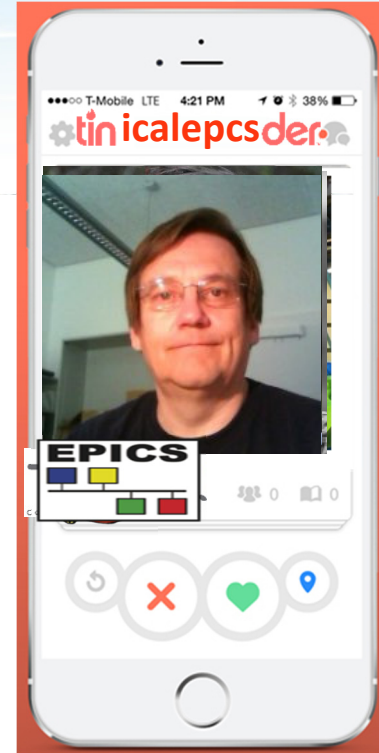
Workshop: PLC based control systems

- 1st Workshop
- Competing with the BIG players



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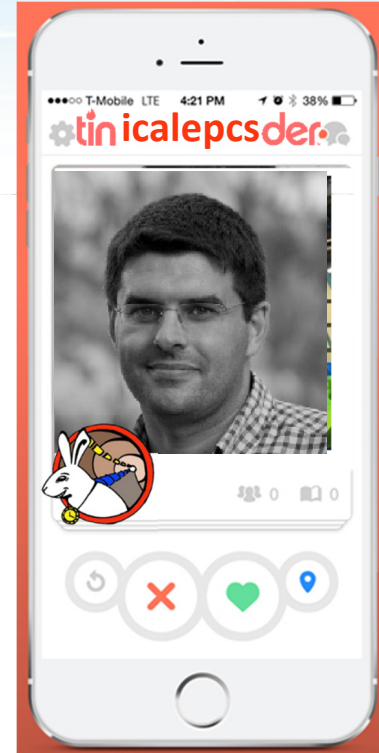
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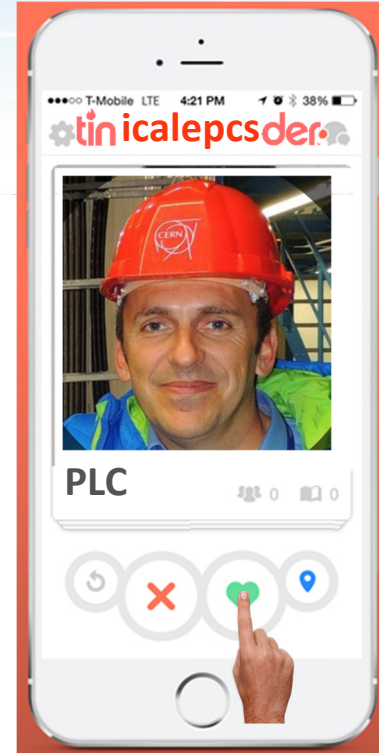
Workshop: PLC based control systems

- 1st Workshop
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Workshop: PLC based control systems

- 1st Workshop
- Competing with the BIG players
- Thanks to all **45** participants



PARTICIPATION (45 participants of 22 Institutes/facilities)

- ALBA
- Brookhaven
- Budker-Institute of Nuclear Physics
- Cea Saclay
- CERN
- China Institute of Atomic Energy
- DESY
- Diamond Light Source
- Eli Beamlines
- ELI-ALPS
- ESS
- Facility for Rare Isotope Beams
- Grand Accélérateur Nat. d'ions Lourds (GANIL)
 - HZDR (Helmholtz Zentrum, Dresden)
 - INFN-LNL
- Japan synchrotron radiation research institute
 - Max Planck Institute for Chemical Energy Conversion
 - Sesame
 - SLAC
 - SOLEIL
 - STFC Daresbury Laboratory
 - XFEL

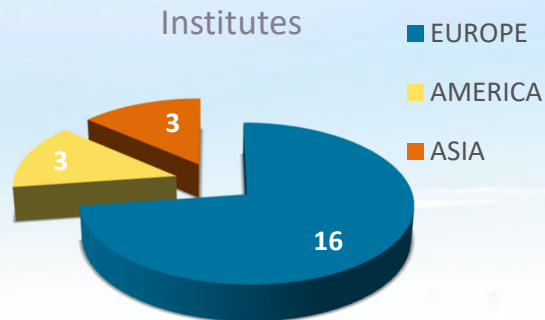
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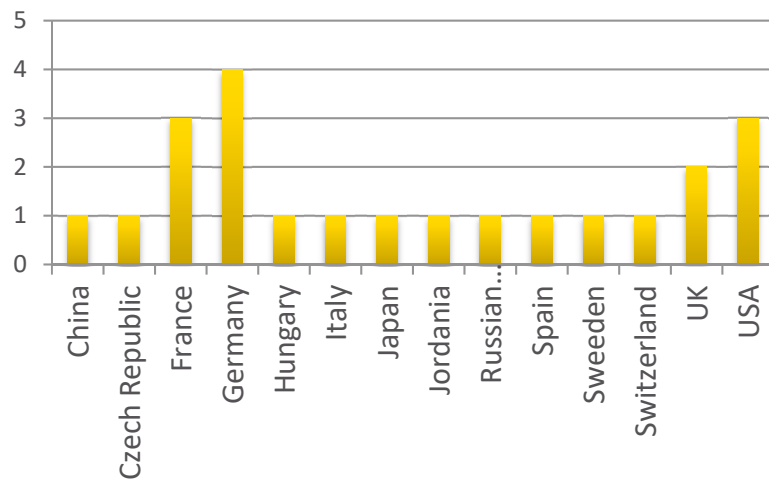
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Statistics

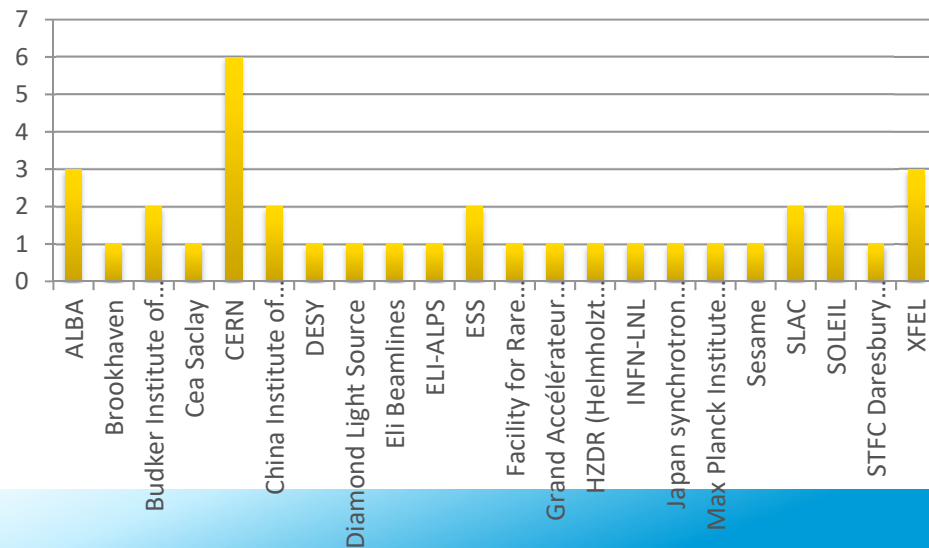


Participants	45
Institutes/Facilities	22
Industrial firms	7
Countries	14

Institutes (per Country)



Participants (per Institute)



Main workshop subject

- Engineering Lifecycle of a PLC based application



- Challenges inferred by applications with **large life span**.

Tracks



Specifications

- **Requirement formalization***
- Best practices
- Documentation

Development

- **Standards and/or Frameworks***
- Language choice, code guidelines
- Novel approaches: Code generation, Ext. engineering, OO, DSLs

Testing/Verification

- **Methodologies*** (FAT, SAT)
- Simulation, virtual commissioning
- **Advanced: Static Analysis, Formal verification***

Management

- **Versioning***
- Deployment
- Management of change

Outcome

- **Collaborations** and identified **expertise** among institutes
- Technical:
 - Specifications are not really unified
 - A move to a higher level programming languages (e.g. C++, Python)
 - Frameworks seem to be a good move to boost efficiency
 - In house diverse testing (large room for improvement)
- Follow up
 - Survey to check the interest and organize the 2nd PLC Based Control Systems workshop



Prize to the best Workshop?

