COSYLAB – Control System Laboratory

Strategies for Teaming with Labs Mark Plesko, Cosylab

Your **TRUSTED** Control System Partner



COSYLAB: 100 employees, 7 locations worldwide

49

46

PUTE COSYLAB

nnn COSYLAB 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75

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92

Canadian Light Source - CLS (CA) 2. Brookhaven National Laboratory - BNL (US) 3. Facility for Rare Isotope Beams - FRB (US) 1 3 Advanced Photon Source - APS at Argonne National Laboratory (US) 36. Clerent (ES) Stanford Linear Accelerator Center SLAC (US) 37. Observatori 6. Varian medical systems (US) 4. Fermi National Accelerator Laboratory - FNAL (US) 8. Los Alamos National Laboratory - LANL IUSI 9. Indiana University (US) 10. National Instruments - NI (US) 11. Spallation Neutron Source - SNS (US) 12. National Radio Astronomy Observatory - NRAO (US) 13. Thomas Jefferson National Accelerator Facility - JLAB (US) 14. Atacama Large Millimeter Array - ALMA (RGn 15. Macedonia Ministry of Agriculture (FYROM) 16. Fisheries and Rural Development, Zagreb (CRO) 17. Cividec Instrumentation GmbH (AT) 18. EBG MedAustron (AT) 19. Sinchrotrone Trieste - ELETTRA (IT) 20. Kyma (IT) 21. Instituto Nazionale di Fisica Nucleare - INFN-LNL BT 22. CERN - European Organization for Nuclear Research (CH) 23. Paul Scherer Institut - PSI (CH) 24. Linde Kryotachnik (CH) 25. Maatel Scientific Instrumentation (FR) 26. Xenocs (FR) 27. French Atomic Energy Commision (FR) 28. International Thermonuclear Experimental Reactor - ITER (FR) 29. European Synchrotron Radiation Facility - ESRF (FR) 30. bioMérieux (FR) 31. Synchrotron Soleil (FR) 32. Atos Origin (FR)

38 37 33. Ion Beam Applications - IBA (B) 34. 9 Son Systems (ES) 35. CELLS - ALBA (ES) 37. Obse Patorio Astronómico Nacional - DAN (ES) 38. ESS Bilbao (ES) 39. Geographic Data Support Ltd (UK) 40. Infoterra Ltd (UK) 41. STAR-APIO (DK) 42. Rutheford Appelton Laboratory (UK) 43. Daresbury Laboratory (UK) 44. Diamond (UB) 45. FMBO Oxford (UK) 46. Siemens (DE) 31 47, ACCEL (DE) (DE) 50. European Molecular Babag28bo236r2 6/12 5E24 51. Physikalisch-Technische Bundesanstalt Berlin - PTB (DE) 52. Jenoptik AG Jena (DE) 53. Forschungzentrum Karlsruhe (DE) 54. Dortmunder Elektronen Speicherring Anlage (DE) 55. Deutsches Elektronen-Synchrotron DESY (DE) 56. European Southern Observatory ESO (DE) 57. Gesselshaft fur Schwerionenforschung (DE) 58. Feinwerk-und-Messetechnik GmbH (DE) 59. Imtech Vonk (NL) 60. Kernfysisch Versneller Instituut - KVI (NL) 61. Danfysik (DK) 62. European Spallation Source (SE)

48. Electron accelerator FLSA (DE) 49. Helmholtz Zentrum berlin fur Materialien und Energie 23(9. BioSistemika (SI) 80. Tsinghua University (CN) 63. MAX-lab, Lund University (SE)

15 16 64. J. Stefan Institute (SI) 65. Hidria (9) 66. ISKRATEL (SI) 67. Telsima (51) 68. AET (51) 69. Slovenian Ministry of Agriculture Food and Forestry (SI), 70. Seaway SI) 71. Slovenian Environmental Agency - ARSO (SI) 72. The purveying and Mapping Authority of the Republic of Slovenia-GURS (SI) 93 73. The National Veterinary Administration- VURS (SI) 74-Instrumentation Technologies - I-TECH (SI 75-Electronic Institute Milan Vidmar -EIMV (S 76. Slovenian Ministry of the Environment and Spatial Planning (SI) 225mart Com (SI) 78. SOU (SI) 81. Pohang Accelerator Labolatory (KR) 82. Hiroshima University (JP) 83. Institute for Molecular Science (JP) 84. Riken (JP) 85. Repic Corporation (JP) 86. Nichizou Denshi Seigyo Kabushikigaisha (JP) 87. Japan Atomic Energy Research Institute - JAERI (JP) 88. High Energy Accelerator Research Organisation - KEK (JP) 89. The University of Tokyo (JP) 90. Hitachi Zosen (JP) 91. Japan Synchrotron Radiation Research Institute - JASRI (JP) 92. NSRRC -National Synchrotron Radiation Research Center (TW) 93. Raja Ramanna Centre of Advanced Technology - RRCAT (IN)

- 94. Australian national nuclear research and development organisation ANSTO (AU)
- 95. Australian Synchrotron AS (AU)

Teaming with

Labs:

- Sincrotrone Trieste
- SINAP, Shanghai
- MedAustron, Austria
- CERN (under discussion)

Universities

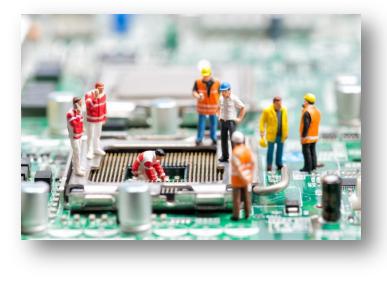
- Ljubljana, Slovenia
- Lund, Sweden
- Hangzhou, Ningbo China
- Hiroshima, Japan
- UC Davis and Santa Cruz



LABS & INDUSTRY

4 Goals, Interests and Expertise are COMPLEMENTARY

Average lab member has estimated experience from 2.67 machines/large projects*





Industry Partners have averege experience of 56.63 projects*

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* Estiimates based on internet research . Data available on request

LABS

Research labs realize a unique set of technical challanges, once

GOALS AND INTERESTS ARE COMPLEMENTARY

- Research Teams (need to) find a way to get it done, and will, somehow
- Research Teams love making NEW mistakes, the world learns from them

INDUSTRY

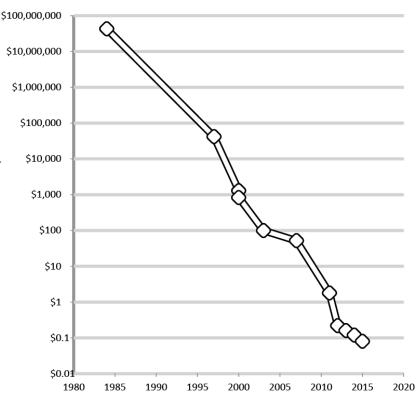
 Industry Partners specialize in one economic, profitable & repeatable service

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- Industry Partners (can) decline assignments that do not fit, for those that fit better
- Industry partners hate repeating OLD mistakes, they already learned

COOPERATION is profitable

- In principle the whole machine could be one off prototype, but:
- It is costly, using standard components saves cost
- Standardisation implies reusing system designs
- Reused designs lead to further standardization opportunities (by industry)
- → Win-Win
- → Self feeding loop



price per GFLOP, last years with standard consumer CPU's



Managing cost of new people by teaming with industry



