







Storing and Analyzing Scientific Data Requires a Worldwide LHC Computing Grid



CSC in Finland is an active and contributing partner in this global computing effort



Our Science is Driven by the Young - and a few oldies too



Actively contributing to next generation of (Finnish) scientists, engineers and innovators





CERN: Particle Physics and Innovation

Interfacing between fundamental science and key technological developments



CERN Technologies and Innovation



Accelerating particle beams



Detecting particles





Large-scale computing (Grid)



Medical Application as an Example of Particle Physics Spin-off



Accelerating particle beams ~30'000 accelerators worldwide ~17'000 used for medicine

Detecting particles

Hadron Therapy



>100'000 patients treated worldwide (45 facilities) >50'000 patients treated in Europe (14 facilities)

Leadership in Ion Beam Therapy now in Europe and Japan



Clinical trial in Portugal, France and Italy for new breast imaging system (ClearPEM)



PET Scanner



Brain Metabolism in Alzheimer's Disease: PET Scan







CERN in Finland

Strong Finnish involvements in the LHC experiments



Helsinki Institute of Physics (HIP) University of Jyväskylä





University of Helsinki& Helsinki Institute of Physics (HIP) Lappeenranta University of Technology



TOTEM (next to CMS): University of Helsinki& Helsinki Institute of Physics (HIP)



New innovative technologies are being developed in Finland in close collaboration with industry



CERN in Finland

Finland joined CERN as a Member State in 1991, but Finnish groups have participated in CERN experiments almost since its foundation.

Scientists from Finland participate in:

- □ LHC experiments: ALICE, CMS, TOTEM
- non-LHC experiments: ISOLDE, CLIC/CTF3 & CLOUD (Cosmic rays and cloud formation)

Participating Finnish Institutes:

- Aalto University
- University of Helsinki
- Helsinki Institute of Physics (HIP, Coordinating Body)
- Finnish Meteorological Institute, Helsinki
- University of Jyväskylä
- University of Kuopio
- Lappeenranta University of Technology
- **Tampere University of Technology**



Conclusions

Since joining CERN as a Member State in 1991, Finland has consolidated its role in CERN - and vice versa

Scientists from Finland significantly contribute to LHC experiments (ALICE, CMS, TOTEM) as well as non-LHC experiments: (ISOLDE, CLIC/CTF3 & CLOUD)

Developing next-generation scientific instrumentation for CERN here in Finland engages (Finnish) scientists, engineers, students, industrycontributing to next generation of scientists and innovators

We invite you along to join the CERN Adventure in Finland!

