Position of the Czech Republic on the European Strategy in Particle Physics

Jiri Chyla

- **Current main activities in particle physics***
- **Plans for the future**
- **Recommendations for the European Strategy**

*More on our current activities in „Czech Republic – midterm report“ by Jiří Chýla, PECFA Plenary, PSI, July 2012

Reminder: overview of our activities

Major involvement in

- ATLAS
- ALICE
- D0
- H1
- STAR
- AUGER
- R&D on detectors for LC and other applications

Theory

- Standard Model oriented
- Strings & related
- Modern Quantum Field Theory

Also in

- Daya Bay
- Compass
- Totem
- Super Nemo
- KATRIN

Recently started activities

- ATLAS upgrade
- Belle II
- Nova
- Cherenkov Telescope Array
- Large Synoptic Survey Telescope

Our current main activities in particle physics

LHC experiments

- **ATLAS**
- **ALICE**

RHIC experiments

- **STAR**

Neutrino accelerator experiments

- **Nova**

Detector R&D for Linear Collider

- **ILD**

No involvement in accelerator R&D

We have been working on luminosity upgrades of

ATLAS

- **SCT**
- **Hadron TileCal**
- **Computing**
- **Forward proton detector project**

ALICE

- **Inner tracking systém**
- **Forward calorimeter**

and will continue to contribute to these upgrades, which we consider **our highest priority.**

Neutrino accelerator program

We intend to contribute to an underground **large volume long base line neutrino facility** based on the LAr TPC technology such as the **underground version** of the LBNE detector at Homestake, South Dakota.

Precision measurement of high energy (~GeV) electron neutrino scattering cross section will help to understand its properties. Proposals for electron neutrino beams allowing for such measurements **should be pursued.**

Linear Collider detector R&D

We have been involved in the development of

- **electromagnetic and hadron calorimeters**

  within the CALICE Collaboration
- **Si tracking and vertex detectors**

  within the DEPFET Collaboration

for ILD (International Large Detector) concept and **will continue to so so in the future.**

ILC with cms energy of 500 GeV has important physics goals. Our decade long involvement in the detector R&D promises good chances for important contribution to the project if it is approved.

Besides the detector R&D, involvement **also in the CLIC physical group** (measurement of triple Higgs coupling at energies 1 – 3 TeV in a detector similar to the ILD).

Recommendations for the European Strategy

We are firmly committed to the exploitation of LHC **including its HL upgrade,** and **this should be the highest priority of CERN European Strategy.**

We shall pursue R&D for detectors at LC and **European Strategy should express support for the realization of ILC as a global project in Japan.**

We will continue our accelerator neutrino programme in US and consider it important that **US accelerator neutrino program gets appropriate place in European Strategy** as well.