

January 10, 2005

**Memorandum to the SPSC: NA49 Status**

We would like to give an update of the information provided to the SPSC in our previous Memorandum CERN-SPSC-2004-017 of June 21, 2004 and ask for a continuation of the active/analysis status of NA49.

We recall that the last data taking run of NA49 was completed in October 2002; the last part of the 20 and 30 A·GeV data from this energy scan of Pb+Pb collisions is being reconstructed at present. At our recent collaboration meeting we confirmed that a vigorous analysis activity is continuing for at least another 3 years with numerous publications either in the pipeline or planned. In addition, the NA49 detector is maintained for possible future use (of all or parts of it) in an envisaged experimental program on p+p, p+A and A+A collisions (see SPSC-EOI-01 and presentations at the Villars workshop) by a new collaboration.

Publication of NA49 results continued this year with numerous conference contributions and a number of refereed journal publications:

- Evidence for an Exotic  $S = -2$ ,  $Q = -2$  Baryon Resonance in Proton-Proton Collisions at the CERN SPS, Phys.Rev.Lett. 93 (2004) 042003
- Energy and centrality dependence of deuteron and proton production in Pb+Pb collisions at relativistic energies, Phys.Rev. C69 (2004) 024902
- $\Lambda$  and anti- $\Lambda$  production in central Pb+Pb collisions at 40, 80 and 158A GeV, Phys.Rev.Lett. 93 (2004) 022302
- Transverse momentum fluctuations in nuclear collisions at 158A GeV, Phys.Rev. C70 (2004) 034902
- Electric charge fluctuations in central Pb+Pb collisions at 20, 30, 40, 80 and 158 AGeV, Phys.Rev. C, in print
- System size dependence of strangeness production in nucleus-nucleus collisions at  $\sqrt{s_{NN}}=17.3$  GeV, Phys.Rev.Letters, in print

and two more papers submitted and in the final refereeing process:

- System size and centrality dependence of the balance function in A+A collisions at  $\sqrt{s_{NN}}=17.3$  GeV, submitted to Phys.Rev. C

- $\Omega$  and anti- $\Omega$  production in central Pb+Pb collisions at 158A GeV, submitted to Phys.Rev.Letters

Moreover, the analysis of a broad range of topics has reached an advanced stage and will lead to many further publications. Among others:

- High precision particle spectra in p+p collisions at 158 GeV
- Study of the nuclear modification factor of particle production in p+Pb and Pb+Pb collisions at 158 GeV
- Energy dependence of inclusive hadron production in central Pb+Pb collisions over the full range of the SPS energy scan
- The centrality dependence of  $\pi$ ,K and antiproton production in Pb+Pb collisions at 40 and 158 AGeV
- A comprehensive study of  $\pi\pi$  Bose-Einstein correlations in Pb+Pb collisions
- Antideuteron production in Pb+Pb collisions at 158 AGeV
- $\Lambda$  elliptic flow in Pb+Pb collisions at 158 AGeV
- Energy and centrality dependence of multiplicity and K/ $\pi$  fluctuations

For our continuing analysis and planning work we rely in part on the computing infrastructure provided to NA49 by the CERN IT department. In discussions with the PH department leader no problem was seen for the continuation of the present level of support by CERN. The copying of the required sample of raw data to CASTOR using our SONY tape drive and robot in its relocated position is proceeding well and should be completed in a couple of weeks. The foreseen final removal of the NA49 SONY tape system, negotiated with IT for the end of 2005, will pose no problem for NA49.

In summary, we kindly ask the SPSC to support the following requests:

- Leave the NA49 detector on the floor until its possible future use will have been further clarified. We understand that the SPSC has made such a recommendation at its February 2004 meeting.
- Continuation of computing support through the IT department at its present level for the next 2-3 years. We consider the present level of support from CERN essential for the successful completion of the physics analysis of NA49 and for the planning of the proposed further use of the detector at the SPS.
- Continuation of the current active/analysis status of NA49 in order to facilitate our extensive activities at CERN.

With best regards,

Peter Seyboth (spokesman NA49)