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To: JINR Scientific Council Д 720.001.04

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Subject: Letter of reference for Dr. Alexei Klimentov

I have known Alexei since 1991, first in the framework of the L3 experiment and then in the AMS-02 experiment (since 1994). Alexei has been the responsible for the on-line Data Acquisition System of L3 and for the Computing Model of AMS-02. I will concentrate on this last experiment where we shared common work.

AMS-02 is a large acceptance spectrometer designed to detect and measure the primary cosmic ray fluxes outside the Earth atmosphere with high precision for about 20 years. The spectrometer has been installed on the International Space Station in May 2011. AMS-02 is equipped with the most advanced technology available for high precision position, time, energy and particle identification measurements. The key elements are a Transition Radiation Detector, a Time-of-Flight detector, a Silicon Tracker, a Ring Imaging Cherenkov Counter and an Electromagnetic Calorimeter.

The analysis of AMS data is a complex procedure, which includes decoding the raw electronics data from the different detectors, transforming the electronics data into measured quantities through calibrations, deriving from these the physical data associated to particles. Furthermore, a complete simulation of the detector has been implemented to study its response to different kind of particles and understand the background to the physical signals.

Alexei took the responsibility to set up the computing and database systems which had to support:

- detector verification studies, granting access to Institutes who participated in building detectors and readout electronics (access to a small fraction of data, infrequently);
- calibration/alignment of the different detectors (frequent access to selected data);
- event visualization (access to a very small fraction of data, frequently);
- data processing, the general reconstruction program, which produces the basic event parameters and do events classification (access to all the data, once)
- data reprocessing (access to all data once and to selected data more frequently).

As the responsible for the AMS-02 Time-of-Flight detector, I constantly interacted with him in the development and realisation of the systems.

During our work together, I could appreciate his professional capabilities, his vast knowledge base, availability to hard work and openness to discussions. He can certainly contribute with original work to research projects concerning the integration of new technologies in scientific contexts, his main strength being the capability to develop new strategies for process innovation.

His curriculum gives him the capability to work in the most profitable way within a multidisciplinary group confronted with the complexity of present day scientific problems, not limited to High Energy Physics.

With best regards



Responsible
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