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Ref.: Letter of recommendation for Dr. Alexei Klimentov

Dear Colleagues,

I am writing this letter in support of Dr. Alexei Klimentov for his habilitation.

I have known Alexei Klimentov as a colleague since 1989, at this time Alexei developed the L3 Hadron Calorimeter online data processing, calibration and monitoring. L3 was one of the four multipurpose experiments at the CERN Large Electron Positron Collider LEP. The collaboration was led by Prof. Samuel C.C. Ting of MIT. I have since then always followed Dr. Klimentov's career with great interest.

In L3, Dr. Klimentov played a key role in the design, construction and operation of the Hadron Calorimeter (HCAL). The performances of this detector were of major importance in the L3 particle physics program. It is the precise and accurate energy measurements from which inference can be made about the phenomena that occur during particle interactions. Dr. Klimentov developed a sophisticated calibration system allowing an accurate control of the different detector components. The system had the required capabilities and was installed in 1989. Dr. Klimentov supervised its operations and developed methods to upgrade the system to meet our ever-increasing demand for higher sensitivity and accuracy.

Once this detector was in operation he took the responsibility of the L3 online computing and networking systems. In order to be able to cope with the increasing luminosity of the LEP accelerator, he proposed a new architecture for the L3 online system. His proposal was approved by the collaboration; its implementation improved significantly the performance and the reliability of the system, allowing to take a large amount of data, which were analyzed producing a large number of physics publications covering Standard Model physics (QCD, Electroweak physics with Z, WW and ZZ) and Beyond Standard Model physics (Search for Higgs and super-symmetric particles).

For many years Alexei Klimentov led the L3 Online Computing, the major accomplishments of his leadership are:
- automatic data transfer between L3 online and offline facilities;
- parallel processing of L3 level-3 trigger information;
- programs for the L3 HCAL online data processing;
- programs for the communication between the L3 and LEP control rooms.

The idea of pairing online and offline facilities and to process data in quasi real-time mode as well as program for the L3/LEP communication were much ahead of their time. Both have been

proposed, prototyped and implemented by Alexei initially for L3 and later adopted by other experiments.

Starting from 1996, upon the request of Professor Ting, Dr. Klimentov played a major role in the design and implementation of AMS (Alpha Magnetic Spectrometer) software and computing. AMS is a magnetic spectrometer analyzing cosmic rays on the International Space Station, successfully in operation since 2011.

We were collaborating for more than a decade to enable data processing and analysis for L3 and AMS experiments. In AMS experiment we served as Computing and SW co-coordinators for several years. It was time when HENP experiments worked on a new computing model. AMS was one of pioneers of distributed data processing now widely used in particle physics experiments. By its nature AMS computing has to be a distributed one, including NASA and CERN computing centers. The AMS computing model is based on design and architecture proposed by Alexei Klimentov.

Dr. Klimentov has an impressive track record of scientific computing, and an even brighter future ahead of him. He is one of the top few percent of particle physicists I have had the privilege to work with. I recommend strongly and without hesitation that he be awarded habilitation.

With my best regards

Martin Pohl

CC: Professor Victor Ivanov (Scientific Council Д 720.001.04 Chair)
        Professor Vladimir Korenkov (LIT JINR Director)