

## Development of aerogel-based RICH detectors



**Speaker:** Alexander Barnyakov (BINR)  
**Host:** Sen Qian (IHEP)  
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### Abstract:

Development and production of aerogel Cherenkov radiators in Novosibirsk were started in 1986. Today aerogels from Novosibirsk are very well-known as Cherenkov radiators for HEP experiments. About half of all HEP experiments with aerogel Cherenkov counters exploit silica based aerogel from Novosibirsk. Current status and recent progress of aerogel Cherenkov radiators production in Novosibirsk are presented. Perspectives of FARICH technique application in the future colliding beam experiments such as Super C-Tau Factory and SPD-NICA are considered as well.

### About the speaker:

Alexander Barnyakov graduated Novosibirsk State Technical University (NSTU), Physics-Technical Department in 2003. Since that time he works at the Budker Institute of Nuclear Physics (BINP). Also he is a docent of Physics-Technical Department at NSTU, gives the lectures and carried out seminars on "Experimental Methods of Nuclear Physics" for Master Science students. In 1999, while he was a student, he was engaged in development of aerogel Cherenkov threshold counters based on unique technique ASHIPH (Aerogel SHifter PHotomultiplier) for the KEDR experiment. Since that time he took parts in aerogel R&Ds for several projects such as ASHIPH counters for the SND experiment at electron-positron collider VEPP-2000 (Novosibirsk), aerogel RICH for LHCb experiment at LHC (CERN), aerogel RICH for AMS-02 experiment (ISS), aerogel RICH for CLAS-12 experiment (JLab). Today he is a leader of the team working on R&D of RICH detectors based on Focusing Aerogel radiator (FARICH). This technique now is considered for particle identification systems in several HEP experiments: Super Charm Tau Factory (electron-positron collider with ultimately high interaction intensity at the energy range 3-7 GeV at Russia) and for the SPD (Spin Physics Detector) experiment at NICA (Nucleon Ion Colliding fAcility at JINR, Dubna, Russia). Alexander BARNyakov is also well experienced in photon detection techniques, micro channel plate (MCP) based devices, silicon photomultipliers (SiPM) application in HEP experiments aspects and have some experience with fast scintillation crystals (such like LYSO) application for time of flight technique with picosecond time resolution. During his professional life Alexander Barnyakov also carried out his investigation in different scientific centres: SLAC (USA), DESY (Germany), LNF-INFN (Frascati, Italy) and CERN (Switzerland).