



ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE
ÚSTAV TECHNICKÉ A EXPERIMENTÁLNÍ FYZIKY

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POZVÁNKA

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Trends and Perspectives in Gaseous Detectors: Linking MPGD Technology for Future Physics Projects

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Abstract: The compelling scientific goals of future high-energy physics experiments are a driving factor in the development of advanced detector technologies. With the increasingly stringent constraints of modern experiments, a large research effort is devoted to the optimization of existing devices and the development of new more powerful concepts for radiation detection.

Modern photolithographic technology has enabled a series of inventions of novel Micro-Pattern Gas Detectors (MPGD), in particular the Gas Electron Multiplier (GEM), the Micro-Mesh Gaseous Structure (Micromegas), and other micro pattern devices, which offers the potential to develop new gaseous detectors with unprecedented spatial resolution, high rate capability, large sensitive area, operational stability and radiation hardness. In addition, the availability of highly integrated amplification and readout electronics allows for the design of gas-detector systems with channel densities comparable to that of silicon detectors. Modern wafer post-processing allows for the integration of gas-amplification structures directly on top of a pixelated CMOS readout chip. Thanks to these recent developments, particle detection through the ionization of gas has large fields of application in future particle, nuclear and astro-particle physics experiments with and without accelerators. In 2008, the RD51 collaboration has been founded to advance technological development of the large area MPGDs and associated electronic-readout systems, for applications in basic and applied research.

This talk will review trends and perspectives of the micro-pattern gaseous detectors for the future physics projects at the High Energy, High Intensity and Cosmic Frontiers.

Seminář se bude konat v úterý 13. listopadu 2012 ve 14 hodin
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