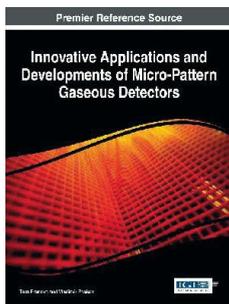


# RECENSIONI



TOM FRANCKE AND VLADIMIR PESKOV

## INNOVATIVE APPLICATIONS AND DEVELOPMENTS OF MICRO-PATTERN GASEOUS DETECTORS

Premier Reference Source

IGI Global Book, Hershey, 2014

hardcover: pp. XXI + 303, \$ 215

ISBN: 9781466660144

e-book: \$ 215

ISBN: 9781466660151

Gaseous avalanche detectors have undergone a continuous development since their first appearance at the beginning of the XIX century. However, their evolution received a considerable boost after the invention of the Multi-Wire Proportional Chambers (MWPC) by G. Charpak in 1968. At the end of the 1980s the micro-pattern detectors arrived on the scene and quickly attracted the attention of physicists: substituting the wires with anodes and cathodes, produced with the microelectronic technology used for modern printed circuit boards, made these detectors much easier to be built, with position and time resolutions much better than the old MWPC.

T. Francke and V. Peskov, in virtue of the many years of researches on these detectors, bring the reader through a historical excursus on how micro-pattern detectors were conceived and how they have evolved in years, becoming a tracking detector widely used in the present experiments. MSGC, MICROMEAS, GEM, TGEM, CAT, RPC, PPAC are acronyms which we had heard several times in the last few years and in this book their characteristics and differences are explained with many details and comments in a clear way, as only persons deeply involved are able to explain. A detailed account of the difficulties and limitations in operation is always reported, showing the continuous effort to improve the performances and the quality of these detectors.

The book develops in 12 chapters. After an introduction on the operation of gaseous detectors, the book describes in each chapter a specific group of detectors, each with a useful final section of "Conclusive remarks" and, often, a final section with interesting in-depth analysis on specific topics ("The ultimate position resolution of MICROMEAS", "Can wire chambers compete with a printed circuit detector technology"...).

Particularly interesting are chapter 10 on how micro-pattern detectors may suppress ion-feedback in recent TPC applications, chapter 11 with an exhaustive comparison among the different design and solutions and chapter 12 with the many different possible applications in future experiments.

It is unfortunate that the quality of many plots, drawing and figures is quite poor and the absence of colours makes their reading sometimes difficult. Certain parts are not enough developed considering their actual large applications (especially for RPCs and MRPCs). In any case, this book represents a huge effort to condensate in a unique volume the hundreds of results and publications concerning these detectors. It is a reference handbook which can be very useful not only to physicists interested in possible applications or in further improvements, but also to students starting to work on micro-pattern tracking detectors.

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