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Ion Mobility Spectrometer for Rapid Simultaneous Detection of Positive and Negative Ions

V. Vasilyev, V. Pershenkov, V. Belyakov, N. Samotaev, A. Golovin, E. Malkin,
E. Gromov, I. Ivanov, M. Matusko, A. Ivanova and D. Lipatov

Micro- and nanoelectronics department, National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation

Ion Mobility Spectrometry (IMS) is a common technology used for rapid detection of trace amounts of explosives (mostly forming negative ions) and drugs (forming positive ions). Emergency chemically hazardous substances widely used in modern industry. Some emergency chemically hazardous substances form positive ions, others form negative ions. Therefore, for the detection of different substances in real time is required to apply the structure of two IMS-detectors. The article describes a device for the simultaneous detection of ions of both polarities with the ionization source based on a pulsed corona discharge. Authors investigated the advantages and disadvantages of such construction compared to unipolar cell in terms of sensitivity. Experimental results have demonstrated.