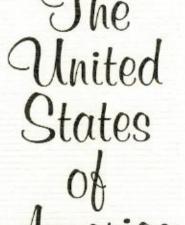
The United States America



The Director of the United States Patent and Trademark Office

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, or importing into the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

Michelle K. Lee

Director of the United States Patent and Trademark Office



(12) United States Patent

(54) PULSED ION MULTIFUNCTIONAL DETECTOR FOR BOTH HIGH PERFORMANCE LIQUID CHROMATOGRAPH AND ION CHROMATOGRAPH

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- Subject to any disclaimer, the term of this (*) Notice: patent is extended or adjusted under 35 U.S.C. 154(b) by 412 days.
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- (22) Filed: May 25, 2014
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US 9,546,988 B2 (10) Patent No.: Jan. 17, 2017

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(58) Field of Classification Search See application file for complete search history.

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ABSTRACT (57)

A pulsed ion multifunctional detector used for both high performance liquid chromatograph and ion chromatograph, and experiment chromatograms attached also show that the detector has excellent multipurpose function in liquid chromatograph. The casing of the instrument is provided with a sample solution inlet, a sample solution outlet, a power supply socket, a liquid crystal display, an operation keyboard and a detection signal output interface. In the casing is provided a detection electromechanical member, which includes a central controller, a detection cell, a preposed subtracting module, a polarity transformation module, a noise processing module and an output amplifier module. The pulsed ion multifunctional detector can sensitively and accurately measure ion current of sample ionized directly in the detection cell, and subtract baseline background generated by various mobile phases and automatically eliminate dynamic noise and drift of the instrument.

8 Claims, 7 Drawing Sheets

