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(54) Title (EN): WIRE ELECTRODE ION CONTROL DEVICE STRETCHER AND WIRE TENSION CONTROL METHOD

(54) Title (FR): TENDEUR DE DISPOSITIF DE COMMANDE D'IONS D'ÉLECTRODE EN FIL ET PROCÉDÉ DE COMMANDE DE TENSION DE FIL

(54) Title (ZH): 一种导线电极离子控制装置拉伸器及导线张力控制方法

(57) Abstract:

(EN): Disclosed are a wire electrode ion control device stretcher and a wire tension control method, which are used for ion generation, transport and mass analysis devices. The present invention can directly generate ions in an ion trap, and use wire electrodes arranged in a space to capture and trap the generated ions, and the ions are directly transported at an extremely low loss to a mass analyzer to obtain mass spectra of different mass ions. By means of the stretcher adjusting the tension of the wire and by means of measuring the sound frequency of the shifted wire so that the tension of the wire is kept consistent, the optimization of forming an ion trap electric field is ensured. Therefore, the present invention has a small and compact structure, has a detection means that is flexible and easy to operate, and is suitable for the fabrication and detection of a wire electron ion trap.

(FR): L'invention concerne un tendeur de dispositif de commande d'ions d'électrode en fil et un procédé de commande de tension de fil, qui sont utilisés pour des dispositifs de génération, de transport et d'analyse de masse d'ions. La présente invention permet de générer directement des ions dans un piège à ions et d'utiliser des électrodes en fil disposées dans un espace pour capturer et piéger les ions générés, et les ions sont directement transportés à une perte extrêmement faible vers un analyseur de masse pour obtenir des spectres de masse d'ions de masse différentes. Au moyen du tendeur réglant la tension du fil et au moyen de la mesure de la fréquence sonore du fil décalé de sorte à maintenir constante la tension du fil, l'optimisation de la formation d'un champ électrique de piège à ions est assurée. Par conséquent, la présente invention a une structure petite et compacte, a un moyen de détection qui est flexible et facile à utiliser, et est appropriée pour la fabrication et la détection d'un piège à ions d'électrons à fil.

(ZH): 本发明公开了一种导线电极离子控制装置拉伸器及导线张力控制方法,用于离子产生、传输和质量分析的装置。本发明可以直接在离子阱中产生离子,并利用在空间布置的导线电极来捕获并囚禁产生的离子,在把这些离子以极低的损耗直接传输到质量分析器,获得不同质量离子的质谱。通过拉伸器调整导线张紧力,并通过测量被拨动导线的声音频率使导线张紧力保持一致,保证所形成离子阱电场最优化。从而本发明结构小巧,检测手段灵活易操作,适用于导线电子离子阱的制造和检测。

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Declarations:

Declaration made as to the identity of the inventor (PCT Rules 4.17(i) and 51bis.1(a)(i))

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America