

Title (en)

Gas injection system for a particle therapy assembly, method for operating the same, and particle therapy assembly comprising the gas injection system

Title (de)

Gasinjektionssystem für eine Partikeltherapieanlage, Verfahren zum Betrieb eines solchen Gasinjektionssystems, und Partikeltherapieanlage umfassend das Gasinjektionssystem

Title (fr)

Système d'injection de gaz pour une installation de traitement par particules, procédé de fonctionnement de ce système, et installation de traitement par particules comprenant ce système d'injection de gaz

Publication

EP 2242339 B1 20170802 (DE)

Application

EP 10155350 A 20100303

Priority

DE 102009017648 A 20090416

Abstract (en)

[origin: EP2242339A2] The system (2) has a line (8) for introducing gas into an ion source (4), and another two lines (10, 12) for two separate gas flows. A multi-path switching valve (6) e.g. 2-position-4-way valve, comprises an inlet (17a) and an outlet (17b), where the latter two lines (10, 12) flows into the inlet of the switching valve. The former line is connected to the outlet of the switching valve. The switching valve is designed in such a manner that the inlet is connected to the outlet, so that either one of the two latter lines is connected in flow relationship with the former line. An independent claim is also included for a method for operating a gas injection system.

IPC 8 full level

H05H 7/00 (2006.01); **H01J 27/02** (2006.01); **H05H 7/08** (2006.01)

CPC (source: EP US)

H05H 7/00 (2013.01 - EP US); **H05H 7/08** (2013.01 - EP US); **H05H 2007/081** (2013.01 - EP US); **Y10T 137/86493** (2015.04 - EP US)

Citation (examination)

- D BUTTON ET AL: "USE OF AN ECR ION SOURCE FOR MASS SPECTROMETRY", 18TH INTERNATIONAL WORKSHOP ON ECR ION SOURCES, vol. 60, 1 January 2008 (2008-01-01), pages 55, XP055192061
- S LEMAITRE ET AL: "ECR PLASMA JET IONIZER FOR A HIGH INTENSITY POLARIZED H/D-ION SOURCE", EPAC 2000 CONTRIBUTIONS TO THE PROCEEDINGS, 24 July 2000 (2000-07-24), XP055192068

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO SE SI SK SM TR

DOCDB simple family (publication)

EP 2242339 A2 20101020; **EP 2242339 A3 20140409**; **EP 2242339 B1 20170802**; CN 101868113 A 20101020; CN 101868113 B 20160601; DE 102009017648 A1 20101021; JP 2010251324 A 20101104; US 2010263756 A1 20101021

DOCDB simple family (application)

EP 10155350 A 20100303; CN 201010163545 A 20100416; DE 102009017648 A 20090416; JP 2010094622 A 20100416; US 75662710 A 20100408