

Title (en)

Cryogenic silicon-based surface-electrode trap and method of manufacturing such a trap

Title (de)

Kryogene, siliziumbasierte Oberflächenelektrodenfalle und Verfahren zur Herstellung solch einer Falle

Title (fr)

Piège cryogénique avec électrode de surface à base de silicium et procédé de fabrication d'un tel piège

Publication

EP 2913839 A1 20150902 (EN)

Application

EP 14157348 A 20140228

Priority

EP 14157348 A 20140228

Abstract (en)

A system for trapping charged or polar particles is provided. The system includes a cryostat and a surface-electrode trap for trapping charged or polar particles. The surface-electrode trap includes a silicon substrate having a front surface and a back surface. Planar electrodes are formed on the front surface of the silicon substrate and configured to generate a trapping potential for trapping the charged or polar particles above the planar electrodes. The planar electrodes include a first radio frequency electrode extending substantially parallel to the front surface of the substrate, and a first direct current electrode extending substantially parallel to the front surface of the substrate and being adjacent to, and electrically insulated from, the first radio frequency electrode. The surface-electrode trap is positioned in the cryostat, and the cryostat is configured for cooling the surface-electrode trap to or below a temperature of 150 K.

IPC 8 full level

H01J 49/00 (2006.01); **G06N 99/00** (2010.01)

CPC (source: EP US)

G06N 10/00 (2019.01 - EP); **H01J 49/422** (2013.01 - US)

Citation (applicant)

- US 7081623 B2 20060725 - PAI CHIEN-SHING [US], et al
- US 7180078 B2 20070220 - PAU STANLEY [US], et al
- US 8426809 B2 20130423 - KUMPH MUIR [AT]
- PRL, vol. 96, 2006, pages 253003

Citation (search report)

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Designated contracting state (EPC)

AL 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 RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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DOCDB simple family (application)

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