

Title (en)

Method and apparatus for sampling a plasma into a vacuum chamber.

Title (de)

Vorrichtung und Verfahren zur Probeentnahme eines Plasmas in einer Vakuumkammer.

Title (fr)

Méthode et dispositif pour l'échantillonnage d'un plasma dans une chambre à vide.

Publication

**EP 0112004 A2 19840627 (EN)**

Application

**EP 83306372 A 19831020**

Priority

CA 417227 A 19821208

Abstract (en)

A plasma (24) is generated within an induction coil (12) and the plasma is sampled through an orifice (30) into a vacuum chamber (28) for mass analysis of trace ions in the plasma. Arcing at the orifice is prevented by grounding the induction coil at or near its centre, thus eliminating ultra-violet noise and reducing average ion energies and ion energy spread, as well as preventing destruction of the orifice. The elimination of arcing at the orifice allows the use of a sharp edge orifice structure (92) to prevent formation of a cool boundary layer over the orifice and also permits direct sampling of the plasma. The direct sampling and the lack of cooling prevent recombination and reaction of the ions with oxygen and improve the response to elements of high ionization potential, increasing the desired ion signal and greatly reducing the presence of oxides which would otherwise complicate the spectrum.

IPC 1-7

**H01J 49/04**

IPC 8 full level

**G01N 27/62** (2006.01); **H01J 49/04** (2006.01); **H01J 49/10** (2006.01); **H05H 1/46** (2006.01)

CPC (source: EP)

**H01J 49/0422** (2013.01); **H01J 49/105** (2013.01); **H05H 1/46** (2013.01)

Cited by

FR2577072A1; US5068534A; US4760253A; US5519215A; EP0199455A3; WO9115029A1

Designated contracting state (EPC)

DE FR GB

DOCDB simple family (publication)

**EP 0112004 A2 19840627**; **EP 0112004 A3 19851106**; **EP 0112004 B1 19890412**; CA 1189201 A 19850618; DE 3379617 D1 19890518; JP S59105257 A 19840618; JP S6016063 B2 19850423

DOCDB simple family (application)

**EP 83306372 A 19831020**; CA 417227 A 19821208; DE 3379617 T 19831020; JP 19228683 A 19831014