

Title (en)  
CYCLOTRON

Title (de)  
ZYKLOTRON

Title (fr)  
CYCLOTRON

Publication  
**EP 1566082 B1 20120530 (FR)**

Application  
**EP 03776680 A 20031114**

Priority  
• EP 03776680 A 20031114  
• BE 0300196 W 20031114  
• EP 02447230 A 20021125

Abstract (en)  
[origin: WO2004049770A1] The invention relates to a cyclotron which can produce a beam of accelerated charged particles that are intended for the irradiation of at least one target (200). The inventive cyclotron consists of a magnetic circuit which essentially comprises: an electromagnet with at least two poles (1, 1'), namely an upper pole (1) and a lower pole (1'), which are disposed symmetrically in relation to a mid-plane (110) which is perpendicular to the central axis (100) of the cyclotron and which are separated by a gap (120) containing the circulating charged particles and return flux (2) in order to close the aforementioned magnetic circuit; and a pair of main induction coils (5, 5') which are used to create an essentially-constant main induction field in the gap between poles 1 and 1'. The invention is characterised in that it comprises means of centring the above-mentioned beam, consisting of at least one pair of bucking coils (6, 7) which are supplied by an electrical source (8) and which can modulate the intensity of the main induction field produced by the main coils (5, 5'), in order to increase the intensity of the induction field in a first area of the cyclotron and to reduce the intensity of the induction field in a second area of the cyclotron, which is diametrically opposed to the central axis (100) of the cyclotron.

IPC 8 full level  
**H05H 7/10** (2006.01); **H05H 13/00** (2006.01)

CPC (source: EP US)  
**H05H 7/10** (2013.01 - EP US); **H05H 13/00** (2013.01 - EP US)

Designated contracting state (EPC)  
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR

DOCDB simple family (publication)  
**WO 2004049770 A1 20040610**; AU 2003286006 A1 20040618; EP 1566082 A1 20050824; EP 1566082 B1 20120530; ES 2385709 T3 20120730; JP 2006507633 A 20060302; JP 4653489 B2 20110316; US 2006255285 A1 20061116; US 7446490 B2 20081104

DOCDB simple family (application)  
**BE 0300196 W 20031114**; AU 2003286006 A 20031114; EP 03776680 A 20031114; ES 03776680 T 20031114; JP 2004554083 A 20031114; US 53633305 A 20051021