

Title (en)

DEVICE AND METHOD FOR REGULATING INTENSITY OF A BEAM EXTRACTED FROM A PARTICLE ACCELERATOR

Title (de)

VORRICHTUNG UND VERFAHREN ZUR REGELUNG DER INTENSITÄT EINES AUS EINEM TEILCHENBESCHLEUNIGER HERAUSGEZOGENEN STRAHLES

Title (fr)

DISPOSITIF ET METHODE DE REGULATION DE L'INTENSITE D'UN FAISCEAU EXTRAIT D'UN ACCELERATEUR DE PARTICULES.

Publication

**EP 1393602 A1 20040303 (FR)**

Application

**EP 02737673 A 20020603**

Priority

- EP 02737673 A 20020603
- BE 0200089 W 20020603
- EP 01870122 A 20010608

Abstract (en)

[origin: EP1265462A1] The beam intensity regulator includes an analogue-digital converter (50) which converts an analogue signal (IM) directly representing the measured beam intensity at the accelerator output into a digital signal (IR). A low pass filter filters the signal (IM) to produce a filtered analogue signal (IF). A phase advance regulator samples the signal (IF), compensates for the phase delay and provides the signal (IR) to a comparator (90). An Independent claim is also included for: a regulation method. Beam intensity regulator, for beams extracted from a particle accelerator such as a cyclotron, used for proton-therapy. The particles are generated from an ion source. Regulator includes: (a) a comparator (90) determining the difference (  $\epsilon$  ) between a digital signal (IR) representing beam intensity measured at the accelerator output and a set value of beam intensity (IC); a SMITH predictor (80) which determines from (  $\epsilon$  ), a corrected value beam intensity value (IP); an inverse correspondence table (40) furnishes, from the corrected value (IP), a value (IA) for supply of a current arc for the ion source (20).

IPC 1-7

**H05H 13/00**; **H05H 7/00**

IPC 8 full level

**A61N 5/10** (2006.01); **H05H 7/00** (2006.01); **H05H 13/00** (2006.01); **H05H 13/04** (2006.01)

CPC (source: EP US)

**H05H 7/00** (2013.01 - EP US); **H05H 13/00** (2013.01 - EP US)

Citation (search report)

See references of WO 02102123A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

**EP 1265462 A1 20021211**; CA 2449307 A1 20021219; CN 1247052 C 20060322; CN 1515133 A 20040721; EP 1393602 A1 20040303; JP 2004529483 A 20040924; US 2004155206 A1 20040812; US 6873123 B2 20050329; WO 02102123 A1 20021219

DOCDB simple family (application)

**EP 01870122 A 20010608**; BE 0200089 W 20020603; CA 2449307 A 20020603; CN 02811473 A 20020603; EP 02737673 A 20020603; JP 2003504721 A 20020603; US 47938003 A 20031125