

## Title (en)

Electron multiplier device with electric field localisation.

## Title (de)

Elektronenvervielfachervorrichtung mit Lokalisierung des elektrischen Feldes.

## Title (fr)

Dispositif multiplicateur d'électrons, à localisation par le champ électrique.

## Publication

**EP 0165119 A1 19851218 (FR)**

## Application

**EP 85400897 A 19850507**

## Priority

FR 8407142 A 19840509

## Abstract (en)

[origin: EP0165119B1] 1. An electron multiplier device comprising, in a vacuum tube : - an entrance window (FE), - a succession of plane, parallel electrodes comprising small interconnected parallel bars, capable of secondary electrical emission, each dynode stage (D1 ...) comprising two successive planes (D11 , D12 ...) adapted to intercept the electrical trajectories in the manner of a baffle, the width of the bars, in cross-section, being at most equal to 0.5 mm, - an anode capable of localizing the impact of the secondary electrons at its level, and - means (E1 , Ei , R0 -R3 ) connected to these dynode stages (D1 -D10 ) in order to establish between them an electron accelerating electric field, the general direction of which is perpendicular to the electrodes, characterised in that the distance (Z1 ) between two consecutive dynode stages (D1 -D2 ), which is several times greater than the width of the bars, is selected, depending on the electrical field, in such a manner that the secondary electrons originating from the upstream stage (D1 ), in a concentrated distribution, a restricted number of bars of the downstream stage (D2 ), and in that the distance (Z0 ) between the two successive planes of each dynode stage is substantially equal to a quarter of the distance (Z1 ) between dynode stages and is selected, depending on the electrical field prevailing between these two planes, to avoid the recapture of a secondary electron by this dynode stage.

## Abstract (fr)

Les dynodes (D1, D2 . . .) du photomultiplicateur comportent chacune deux plans espacés (D11 et D12), dont les lamelles élémentaires ont une section droite en forme de triangle isocèle, tournées symétriquement vers la fenêtre d'entrée du tube photomultiplicateur. Les lames de deux plans consécutifs sont intercalées en chicane, et agencées de sorte que les électrons partant du premier plan traversent le second sans en frapper les lamelles. La distance Z1 entre deux étages de dynodes, qui est grande par rapport à la distance Z0 entre deux plans d'une même dynode, est choisie, en fonction du champ électrique, de sorte que les électrons secondaires provenant de l'étage amont frappent selon une distribution concentrée un nombre limité de lamelles de l'étage aval.

## IPC 1-7

**H01J 43/22**

## IPC 8 full level

**H01J 43/22** (2006.01)

## CPC (source: EP US)

**H01J 43/22** (2013.01 - EP US)

## Citation (search report)

- [A] EP 0013235 A1 19800709 - ANVAR [FR]
- [A] US 3579017 A 19710518 - VESTAL MARVIN L
- [A] REVIEW OF SCIENTIFIC INSTRUMENTS, vol 52, no. 3, mars 1981, pages 337-346, New York, US; K. KURODA et al.: "New type of position sensitive photomultiplier"

## Cited by

EP0833368A3; US4980604A; EP0230694A1; FR2592523A1; EP0471563A3; US5254906A

## Designated contracting state (EPC)

AT BE CH DE FR GB IT LI LU NL SE

## DOCDB simple family (publication)

**EP 0165119 A1 19851218; EP 0165119 B1 19891129**; AT E48338 T1 19891215; DE 3574522 D1 19900104; FR 2566175 A1 19851220; FR 2566175 B1 19861010; JP H0421303 B2 19920409; JP S6182646 A 19860426; US 4914351 A 19900403

## DOCDB simple family (application)

**EP 85400897 A 19850507**; AT 85400897 T 19850507; DE 3574522 T 19850507; FR 8407142 A 19840509; JP 9886885 A 19850509; US 73186085 A 19850508