

Title (en)

THROUGH TRANSMISSION X-RAY SYSTEM WITH ELECTRON MANIPULATION AND METHODS OF USE

Title (de)

DURCHSTRAHLUNGS-RÖNTGENSYSTEM MIT ELEKTRONENMANIPULATION UND VERWENDUNGSVERFAHREN

Title (fr)

SYSTÈME À TRANSMISSION DIRECTE DE RAYONS X PAR MANIPULATION D'ÉLECTRONS ET PROCÉDÉS D'UTILISATION

Publication

EP 4143870 A4 20240515 (EN)

Application

EP 22799636 A 20220505

Priority

- US 202163184537 P 20210505
- US 2022027943 W 20220505

Abstract (en)

[origin: WO2022235985A1] A through transmission-ray system with electron manipulation and accompanying methods of use are disclosed. The system may include an x-ray tube for accelerating influenced electrons under a high voltage potential for the purpose of irradiating samples. The x-ray tube may include an evacuated and vacuum sealed housing, a through transmission target anode deposited on the housing, a filament within the housing, and a cathode structure for facilitating manipulation of emitted electrons using a waveform generator, electrostatic poles, lenses, radio frequency signals, and/or magnetic fields. The cathode structure may emit electrons toward the target anode and may facilitate electrostatic and/or magnetic influence of the emitted electrons to generate a plurality of x-ray field shapes and/or patterns. Additionally, the cathode structure may be utilized to adjust the electron trajectories of the electrons to optimize irradiation of samples within range of the x-ray tube depending on the relevant use-case scenario.

IPC 8 full level

H01J 35/16 (2006.01); **G01N 23/04** (2018.01); **G01N 23/2251** (2018.01); **H01J 35/06** (2006.01); **H01J 35/08** (2006.01); **H01J 35/14** (2006.01)

CPC (source: EP)

H01J 35/14 (2013.01); **G01N 2223/204** (2013.01); **H01J 35/186** (2019.04)

Citation (search report)

- [X] US 2008240344 A1 20081002 - REINHOLD ALFRED [DE]
- [X] US 2001050972 A1 20011213 - YAMADA KOICHI [JP], et al
- [X] EP 0319912 A2 19890614 - WANG CHIA GEE DR
- See references of WO 2022235985A1

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)

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DOCDB simple family (publication)

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