

Title (en)

OPTICAL ELEMENT, EUV LITHOGRAPHY SYSTEM, AND METHOD FOR FORMING NANOPARTICLES

Title (de)

OPTISCHES ELEMENT, EUV-LITHOGRAPHIESYSTEM UND VERFAHREN ZUM BILDEN VON NANOPARTIKELN

Title (fr)

ÉLÉMENT OPTIQUE, SYSTÈME DE LITHOGRAPHIE EUV ET PROCÉDÉ DE FORMATION DE NANOPARTICULES

Publication

**EP 4150644 A1 20230322 (DE)**

Application

**EP 21722416 A 20210427**

Priority

- DE 102020206117 A 20200514
- EP 2021060921 W 20210427

Abstract (en)

[origin: WO2021228545A1] The invention relates to an optical element (1) comprising: a substrate (2); a multi-layer system (3) which is applied to the substrate (2) and reflects EUV radiation (4); and a protective layer system (5) which is applied to the multi-layer system (3) and comprises an uppermost layer (5a). Nanoparticles (7) are embedded in the material of the uppermost layer (5a) of the protective layer system (5), which nanoparticles preferably contain at least one metal material. The invention also relates to an EUV lithography installation which comprises at least one optical element (1) designed as described above, and to a method for forming nanoparticles (7) in the uppermost layer (5a) of the protective layer system (5).

IPC 8 full level

**G21K 1/06** (2006.01); **G03F 7/20** (2006.01)

CPC (source: EP US)

**G03F 7/7015** (2013.01 - EP US); **G03F 7/70175** (2013.01 - EP); **G03F 7/70316** (2013.01 - EP US); **G03F 7/70925** (2013.01 - EP); **G21K 1/062** (2013.01 - EP); **G21K 2201/067** (2013.01 - EP); **H05G 2/005** (2013.01 - EP)

Citation (search report)

See references of WO 2021228545A1

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)

BA ME

Designated validation state (EPC)

KH MA MD TN

DOCDB simple family (publication)

**DE 102020206117 A1 20211118**; EP 4150644 A1 20230322; US 2023076667 A1 20230309; WO 2021228545 A1 20211118

DOCDB simple family (application)

**DE 102020206117 A 20200514**; EP 2021060921 W 20210427; EP 21722416 A 20210427; US 202217986329 A 20221114