

Title (en)  
MIRROR FOR A MICROLITHOGRAPHIC PROJECTION EXPOSURE SYSTEM, AND METHOD FOR OPERATING A DEFORMABLE MIRROR

Title (de)  
SPIEGEL FÜR EINE MIKROLITHOGRAPHISCHE PROJEKTIONSBELEUCHTUNGSANLAGE, SOWIE VERFAHREN ZUM BETREIBEN EINES DEFORMIERBAREN SPIEGELS

Title (fr)  
MIROIR POUR UNE INSTALLATION D'EXPOSITION POUR LA MICROLITHOGRAPHIE PAR PROJECTION AINSI QUE PROCÉDÉ POUR FAIRE FONCTIONNER UN MIROIR DÉFORMABLE

Publication  
**EP 3827444 A1 20210602 (DE)**

Application  
**EP 19737007 A 20190624**

Priority  
• DE 102018212508 A 20180726  
• EP 2019066634 W 20190624

Abstract (en)  
[origin: WO2020020550A1] The invention relates to a mirror for a microlithographic projection exposure system, and to a method for operating a deformable mirror. According to one aspect of the invention, a mirror has an active optical area (11), a mirror substrate (12), a reflective layer stack (21) for reflecting electromagnetic radiation impinging on the active optical area (11), and at least one piezoelectric layer (16), which is arranged between the mirror substrate (12) and the reflective layer stack (21) and which, via a first electrode arrangement situated on the side of the piezoelectric layer (16) facing the reflective layer stack (21) and via a second electrode arrangement situated on the side of the piezoelectric layer (16) facing the mirror substrate (12), can be exposed to an electrical field for generating a locally variable deformation, this piezoelectric layer (16) having a plurality of columns spatially separated from one another by column boundaries, wherein a mean column diameter of said columns is in the range of from 0.1  $\mu\text{m}$  to 50  $\mu\text{m}$ .

IPC 8 full level  
**G21K 1/06** (2006.01); **G02B 5/08** (2006.01); **G02B 26/06** (2006.01); **G03F 7/20** (2006.01)

CPC (source: EP KR US)  
**G02B 5/0891** (2013.01 - EP KR US); **G02B 26/06** (2013.01 - EP); **G02B 26/0816** (2013.01 - KR); **G03F 7/70266** (2013.01 - EP KR US); **G03F 7/70316** (2013.01 - EP KR US); **G21K 1/062** (2013.01 - EP KR); **H10N 30/206** (2023.02 - US); **H10N 30/704** (2024.05 - EP); **H10N 30/708** (2024.05 - EP KR US); **H10N 30/802** (2023.02 - EP KR); **H10N 30/8554** (2023.02 - EP KR US); **G21K 2201/067** (2013.01 - EP KR)

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

DOCDB simple family (publication)  
**WO 2020020550 A1 20200130**; DE 102018212508 A1 20200130; EP 3827444 A1 20210602; JP 2021531510 A 20211118; JP 7438185 B2 20240226; KR 20210040045 A 20210412; US 11187990 B2 20211130; US 2021149310 A1 20210520

DOCDB simple family (application)  
**EP 2019066634 W 20190624**; DE 102018212508 A 20180726; EP 19737007 A 20190624; JP 2021504275 A 20190624; KR 20217002023 A 20190624; US 202117158083 A 20210126