PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5391393

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|-------------------------------|----------------|
| FEDERICO CAPASSO | 10/24/2017 |
| JAN PHILLIP BALTHASAR MUELLER | 10/20/2017 |
| NOAH A. RUBIN | 10/11/2017 |

RECEIVING PARTY DATA

| Name: | President and Fellows of Harvard College | |
|-----------------|--|--|
| Street Address: | 17 Quincy Street | |
| City: | Cambridge | |
| State/Country: | MASSACHUSETTS | |
| Postal Code: | 02138 | |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 16327771 |

CORRESPONDENCE DATA

Fax Number: (617)495-9568

Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.

Phone: (617) 495-3067

Email: siobhan murphy@harvard.edu

Correspondent Name: KAREN SINCLAIR

Address Line 1: 1350 MASSACHUSETTS AVE

Address Line 2: HARVARD UNIVERSITY, OFFICE OF TECH. DEV.

Address Line 4: CAMBRIDGE, MASSACHUSETTS 02138

| ATTORNEY DOCKET NUMBER: | 6476 |
|-------------------------|----------------|
| NAME OF SUBMITTER: | KAREN SINCLAIR |
| SIGNATURE: | /K.S./ |
| DATE SIGNED: | 02/25/2019 |

Total Attachments: 5

source=PCTUS1748469_Assignment_Dec_FullyExecuted_HU#page1.tif source=PCTUS1748469_Assignment_Dec_FullyExecuted_HU#page2.tif source=PCTUS1748469_Assignment_Dec_FullyExecuted_HU#page3.tif

PATENT 505344610 REEL: 048427 FRAME: 0122

source=PCTUS1748469_Assignment_Dec_FullyExecuted_HU#page4.tif source=PCTUS1748469_Assignment_Dec_FullyExecuted_HU#page5.tif

PATENT REEL: 048427 FRAME: 0123

ASSIGNMENT / DECLARATION

For good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, I, the undersigned:

Federico Capasso, Jan Phillip Balthasar Mueller and Noah A. Rubin

(each hereafter "Assignor") hereby assign, sell, and transfer to:

President and Fellows of Harvard College 17 Quincy Street Cambridge, MA 02138

(hereafter "Assignee") its successors and assigns, Assignor's entire right, title, and interest throughout the world in and to any and all inventions and designs for:

ARBITRARY POLARIZATION-SWITCHABLE METASURFACES

described in International Application No. PCT/US17/48469, filed August 24, 2017, and in and to the aforesaid application, in any form or embodiment thereof, and in and to any application on any of the inventions and designs filed in this and any foreign country, based thereon, including the right to file said applications, apply for patent rights, and claim priority under the provisions of any international convention or treaty; also the entire right, title, and interest throughout the world in and to any and all patents or reissues or extensions thereof to be obtained in this or any foreign country upon any of the inventions and designs and any divisional, continuation, or substitute applications which may be filed upon said invention and design or inventions and designs in this or any foreign country; and the right to sue in its own name and recover damages for past infringement of any United States Letters Patent and foreign patent, including a reasonable royalty relating to provisional rights under 35 U.S.C. § 154(d) that have attached to any published United States patent application, on the inventions and designs; and authorize and request the issuing authority to issue any and all patents on said application or applications to said Assignee or its successors and assigns.

For purposes of complying with foreign requirements, the above paragraph is intended to expressly grant all the recited rights and grants in China, Korea, and Japan.

Assignor hereby warrants that he/she has full right to convey his/her entire right, title and interest, both legal and equitable, in and to said inventions and designs, free from all prior assignments, agreements, licenses, mortgages, security interests, or other encumbrances whatsoever; and

Page 1 of 5

Patent Assignment HU Case No.: HU 6476 Appin. No.: PCT/US17/48469

Assigner further agrees, without further payment or compensation by said Assignee, or its successors and assigns, to communicate to said Assignee, its representatives or agents, or its successors and assigns, any facts relating to said invention and design or inventions and designs including evidence for interference purposes or for other legal proceedings, whenever requested; testify in any interference or other legal proceedings whenever requested; execute and deliver, on request, all lawful papers required to make any of the foregoing provisions effective, and generally do everything possible to aid said Assignee, its representatives or agents, or its successors or assigns to secure, obtain, and enforce proper patent protection for said invention and design or inventions and designs in this and any foreign country.

Assignor authorizes Assignee or Assignee's representative to supply and/or to correct any errors in the patent/application information provided above including, but not limited to, said application serial number and filing date, prior to or after recordation.

Assignor appoints Assignee, through its designee, as its attorney-in-fact to execute, in Assignor's name and on Assignor's behalf, any and all documents required to effectuate this Assignment, specifically including, but not limited to, those documents specified above and any necessary corrective assignments.

The above-identified application was made or authorized to be made by me. I believe I am the original inventor or an original joint inventor of a claimed invention and design in the application.

I have reviewed and understand the contents of the above-identified application, including the claims. I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

All statements made herein of my own knowledge are true, and all statements made herein on information and belief are believed to be true. I hereby acknowledge that any willful false statement and the like made in this declaration is punishable by fine or imprisonment of not more than five (5) years, or both, under 18 U.S.C. § 1001, and may jeopardize the validity of the application or any patent issuing thereon.

Patent Assignment HU Case No.: HU 6476 Appin. No.: PCT/US17/48469

Inventor: Federico Capasso

Address: 56 Wendell St. AB Cambridge MA (3-13)
Citizenship: USA

Witness:

10/21/17
Date

Name: Devi Penc

Address: 29 Oxford St.

Patent Assignment HU Case No.: HU 6476 Appla. No.: PCT/US17/48469

| 10/20/2017 | 2 billy 18 febr |
|------------|--|
| Date | Inventor: Jan Phillip Balthasar Mueller |
| | Address: Kaiser-Friedrich Strasse 3a |
| | 10585 Berlin, Germany Citizenship: German |
| | - 1 m |
| Witness: | a atoma 4TV |
| 10/20/2017 | U. UPH WILLUTIES |
| Date | Signature |
| | Name: Augusta Oplermann |
| | Address: Kaiser-Friedrich Strasse 3a |
| | 10585 Berlin Germany |

Patent Assignment HU Case No.: HU 6476 Apple. Ne.: PCT/US17/48469

Inventor: Noah A. Rubin
Address: 1537 Canbridge St., Cambridge, MA 02139

Cilizenship: 🛵 🖯 🔏

Witness:

Name:

Address:

Page 5 of 5

PATENT REEL: 048427 FRAME: 0128

RECORDED: 02/25/2019