PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
ZOPE BHUSHAN	09/04/2018
KIRAN SHRESTHA	08/21/2018
SHANKAR SWAMINATHAN	09/06/2018
CHIYU ZHU	10/21/2020
HENRI TUOMAS ANTERO JUSSILA	08/22/2018
QI XIE	08/21/2018

RECEIVING PARTY DATA

Name:	ASM IP HOLDING B.V.
Street Address:	VERSTERKERSTRAAT 8
City:	ALMERE
State/Country:	NETHERLANDS
Postal Code:	1322 AP

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16105802

CORRESPONDENCE DATA

Fax Number: (602)470-2434

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: 6024705707
Email: michelle.sympson@asm.com
Correspondent Name: PATRICK LEE
Address Line 1: 3440 E. UNIVERSITY DRIVE
Address Line 4: PHOENIX, ARIZONA 85034

ATTORNEY DOCKET NUMBER:	PAT-AM-0896-US-NP
NAME OF SUBMITTER:	MICHELLE SYMPSON
SIGNATURE:	/Michelle Sympson/
DATE SIGNED:	11/07/2020

Total Attachments: 7

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Application Serial No.: 16/105,802 Docket No.: PAT-AM-0896-US-NP
Filing Date: August 20, 2018
Title: METHODS FOR DEPOSITING A MOLYBDENUM METAL FILM OVER A DIELECTRIC SURFACE OF A SUBSTRATE BY A CYCLICAL DEPOSITION PROCESS AND RELATED SEMICONDUCTOR DEVICE STRUCTURES

ASSIGNMENT

WHEREAS, BHUSHAN ZOPE, a citizen of India and a resident of Phoenix, Arizona; KIRAN SHRESTHA, a citizen of Nepal and a resident of Tempe, Arizona; SHANKAR SWAMINATHAN, a citizen of India and a resident of Phoenix, Arizona; CHIYU ZHU, a citizen of China and a resident of Helsinki, Finland; HENRI TUOMAS ANTERO JUSSILA, a citizen of Finland and a resident of Espoo, Finland; and QI XIE, a citizen of Belgium and a resident of Leuven, Belgium;

(collectively, "WE" or "ASSIGNOR") have conceived of one or more processes, methods, machines, articles of manufacture, designs, compositions of matter, inventions, discoveries or new or useful improvements relating to METHODS FOR DEPOSITING A MOLYBDENUM METAL FILM OVER A DIELECTRIC SURFACE OF A SUBSTRATE BY A CYCLICAL DEPOSITION PROCESS AND RELATED SEMICONDUCTOR DEVICE STRUCTURES (collectively, the "INVENTIONS") for which WE have executed and/or may execute one or more patent applications therefore; and

WHEREAS, ASM IP HOLDING B.V. (hereinafter "ASSIGNEE"), a corporation having a place of business at Versterkerstaat 8, Almere, 1322 AP, Netherlands, desires to acquire or otherwise obtain the entire right, title, and interest in and to said INVENTIONS, including all patent applications therefore, and all patents that have granted or may be granted hereafter thereon, including, but not limited to, those identified below.

NOW, THEREFORE, for good and valuable consideration, the receipt of which is hereby acknowledged, WE do hereby acknowledge that WE have sold, assigned, conveyed and transferred, and by these presents do hereby sell, assign, convey and transfer, unto ASSIGNEE, its successors, its legal representatives and its assigns, the entire right, title, and interest throughout the world in and to said INVENTIONS, including all patent applications therefore that may have been filed or may be filed hereafter for said INVENTIONS (including but not limited Application No(s). 16/105,802, filed on August 20, 2018, as Docket No. PAT-AM-0896-US-NP (and do hereby authorize ASSIGNEE and its representative to hereafter add herein such application number(s) and/or filing date(s) when known)) and all rights of priority under International Conventions, Treaties, and Agreements, all utility applications, national phase applications, utility model applications, divisional applications, renewal applications, continuation applications, continuation-in-part applications, patent of addition applications, confirmation applications, validation applications and design applications thereof,

and all issued patents which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon;

AND WE DO HEREBY authorize and request any Official of any country or countries whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to ASSIGNEE, its successors, its legal representatives, and its assigns, in accordance with the terms of this instrument;

AND WE DO HEREBY sell, assign, transfer, and convey to said ASSIGNEE, its successors, its legal representatives, and its assigns all claims for damages and all remedies arising out of or relating to any violation(s) of any of the rights assigned hereby that have or may have accrued prior to the date of assignment to said ASSIGNEE, or may accrue hereafter, including, but not limited to the right to sue for, seek, obtain, collect, recover and retain damages and any ongoing or prospective royalties to which WE may be entitled, or form any settlement or agreement related to any of said patents before or after issuance;

AND WE HEREBY covenant and agree that WE will communicate promptly to said ASSIGNEE, its successors, its legal representatives, and its assigns, any facts known to us respecting said INVENTIONS, and will testify in any legal proceeding, sign all lawful papers, execute all applications and certificates, make all rightful declarations and/or oaths, and provide all lawful assistance to said ASSIGNEE, its successors, its legal representatives, and its assigns, to obtain and enforce patent protection for said INVENTIONS in all countries.

EXECUTED as of the date(s) below by ASSIGNOR:

ZOPE BHUSHAN

9/4/18

Signature Date

KIRAN SHRESTHA

Signature Date

SHANKAR SWAMINATHAN

Signature Date

CHIYU ZHU

Signature Date

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EXECUTED as of the date(s) below by ASSIGNOR:

ZOPE BHUSHAN

Signature Date

KIRAN SHRESTHA

08-21-2018

Signature Date

SHANKAR SWAMINATHAN

Signature Date

CHIYU ZHU

Signature Date

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EXECUTED as of the date(s) below by ASSIGNOR:

ZOPE BHUSHAN

Signature   Date

KIRAN SHRESTHA

Signature   Date

SHANKAR SWAMINATHAN

9/6/2018

Signature   Date

CHIYU ZHU

Signature   Date

and all issued patents which may have granted or may be granted hereafter thereon and all reissues, renewals, reexaminations, and extensions to any of the foregoing and all patents issuing thereon;

AND WE DO HEREBY authorize and request any Official of any country or countries whose duty it is to issue patents on applications or registrations, to issue all patents for said INVENTIONS to ASSIGNEE, its successors, its legal representatives, and its assigns, in accordance with the terms of this instrument;

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EXECUTED as of the date(s) below by ASSIGNOR:

ZOPE BHUSHAN

Signature		Date

KIRAN SHRESTHA

Signature		Date

SHANKAR SWAMINATHAN

Signature		Date

CHIYU ZHU

Oct 21 2020

Signature		Date

HENRI TUOMAS ANTERO JUSSILA

Signature

22.8.2018

Date

QI XIE

Signature

Date

HENRI TUOMAS ANTERO JUSSILA

Signature

Date

QI XIE

Qi Xie

Signature

August 21, 2018

Date