504055305 10/18/2016

PATENT ASSIGNMENT COVER SHEET

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

CONVEYING PARTY DATA

| Name | Execution Date |
|-------------------|----------------|
| WILLIAM D. JONES | 07/27/2016 |
| SUMIT CHAKRABORTY | 08/02/2016 |

RECEIVING PARTY DATA

| Name: | THE UNIVERSITY OF ROCHESTER |
|-------------------|-----------------------------|
| Street Address: | 601 ELMWOOD AVENUE |
| Internal Address: | BOX URV |
| City: | ROCHESTER |
| State/Country: | NEW YORK |
| Postal Code: | 14642 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 15211393 |

CORRESPONDENCE DATA

Fax Number: (404)645-7707

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: 404-645-7700

Email: cdavis@mcciplaw.com

Correspondent Name: MEUNIER CARLIN & CURFMAN LLC
Address Line 1: 999 PEACHTREE STREET, NE

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Address Line 4: ATLANTA, GEORGIA 30309

| ATTORNEY DOCKET NUMBER: | 10028-143US1 |
|-------------------------|----------------|
| NAME OF SUBMITTER: | CHÉ M. DAVIS |
| SIGNATURE: | /Ché M. Davis/ |
| DATE SIGNED: | 10/18/2016 |

Total Attachments: 3

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PATENT 504055305 REEL: 040046 FRAME: 0575

ASSIGNMENT

For valuable consideration, we, William D. Jones, of Rochester, New York; and Sumit Chakraborty, of Rochester, New York, hereby assign to THE UNIVERSITY OF ROCHESTER, a University, having a place of business at 601 Elmwood Avenue, Box URV, Rochester, New York, 14642, and its successors and assigns (collectively hereinafter "the Assignee"), the entire right, title, and interest throughout the world in the inventions and improvements that are subject of an application for United States Patent, titled "METHODS FOR PRODUCING BUTANOL," filed July 15, 2016, and assigned U.S. Patent Application No. 15/211,393, this assignment including said application, any and all divisional, continuing, substitute, renewal, reissue and all other applications for patent that have been or shall be filed in the United States and all foreign countries on any such inventions or improvements; all original and reissued patents that have been or shall be issued in the United States and all foreign countries on such inventions or improvements; and all United States and foreign patents, utility models, and design registrations granted for any of said inventions or improvements, and the right to claim priority based on the filing date of said application under the International Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, the European Patent Convention, and all other treaties of like purposes; and we authorize the Assignee to apply in all countries in our name or in its own name for patents, utility models, design registrations and like rights of exclusion and for inventors' certificates for said inventions and improvements; and we agree for ourselves and our respective heirs, legal representatives and assigns, without further compensation to perform such lawful acts and to sign such further applications, assignments, Preliminary Statements and other lawful documents as the Assignee may reasonably request to effectuate fully this assignment.

STATE OF William D. Jones

STATE OF Sta

WITNESS my hand and official seal.

Votary Public

BARBARA A. SNAITH
Notary Public, State of New York
No. 80-4647212
Qualified in Monroe County
Commission Expires Dec. 31, 20

REEL: 040046 FRAME: 0577

| Date: 8/2/2016 | Sumit Charrabolf | |
|--|--|-------------------------------|
| | Sumit Chakraborty | |
| STATE OF Lemanae) SS. COUNTY OF Sullian) SS. On Lemana (Included a state of Lemanae a state of name is subscribed to this Assignment, who a authorized capacity and that by his/her signat upon behalf of which he/she acted, executed to WITNESS my hand and official seal. | , 2016, before me, the undersigned, personally appeared Sumit Chakrabe satisfactory evidence) to be the peracknowledged having executed the sure on this Assignment, the person this Assignment. | rson whose same in his/her |