

PATENT ASSIGNMENT

Electronic Version v1.1

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SUBMISSION TYPE:	NEW ASSIGNMENT										
NATURE OF CONVEYANCE:	ASSIGNMENT										
CONVEYING PARTY DATA											
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Name</th> <th style="width: 30%;">Execution Date</th> </tr> </thead> <tbody> <tr> <td>Sunmin Ryu</td> <td>06/24/2010</td> </tr> <tr> <td>Louis E Brus</td> <td>11/23/2010</td> </tr> <tr> <td>Michael L Steigerwald</td> <td>09/16/2010</td> </tr> <tr> <td>Haitao Lu</td> <td>06/23/2010</td> </tr> </tbody> </table>		Name	Execution Date	Sunmin Ryu	06/24/2010	Louis E Brus	11/23/2010	Michael L Steigerwald	09/16/2010	Haitao Lu	06/23/2010
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Name:</td> <td>The Trustees Of Columbia University In The City Of New York</td> </tr> <tr> <td>Street Address:</td> <td>116th Street & Broadway</td> </tr> <tr> <td>City:</td> <td>New York</td> </tr> <tr> <td>State/Country:</td> <td>NEW YORK</td> </tr> <tr> <td>Postal Code:</td> <td>10027</td> </tr> </table>		Name:	The Trustees Of Columbia University In The City Of New York	Street Address:	116th Street & Broadway	City:	New York	State/Country:	NEW YORK	Postal Code:	10027
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CORRESPONDENCE DATA											
<p>Fax Number: (212)259-2482</p> <p><i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i></p> <p>Phone: 212-408-2500</p> <p>Email: DLNYDOCKET@BAKERBOTTSCOM</p> <p>Correspondent Name: BAKER BOTTS L.L.P.</p> <p>Address Line 1: 30 ROCKEFELLER PLAZA</p> <p>Address Line 2: 44TH FLOOR</p> <p>Address Line 4: NEW YORK, NEW YORK 10112-4498</p>											
ATTORNEY DOCKET NUMBER:	070050.3972										
NAME OF SUBMITTER:	Danielle Gamache										
Total Attachments: 7											

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PATENT**ASSIGNMENT**

WHEREAS, WE, SUNMIN RYU, a citizen of the Republic of Korea, having a residence address at 420 West 19th Street, Apt. 40, New York, New York 10027; LOUIS E. BRUS, a citizen of the United States, having a residence address at 25 Crossbar Road, Hastings, New York 10706; MICHAEL L. STEIGERWALD, a citizen of the United States, having a residence address at 1037 Vosseller Avenue, Martinsville, New Jersey 08836; and HAITAO LIU, a citizen of the People's Republic of China, having a post office address at 227 Station Square Boulevard, Lansdale, Pennsylvania 19446 (hereinafter "ASSIGNORS"), have made an invention entitled "SYSTEMS AND METHODS FOR FORMING DEFECTS ON GRAPHITIC MATERIALS AND CURING RADIATION-DAMAGED GRAPHITIC MATERIALS" as set forth and described in application for Letters Patent of the United States, Application Serial No. 12/770,242, filed April 29, 2010; and

WHEREAS, THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK (hereinafter "ASSIGNEE"), having its principal place of business at 116th Street & Broadway, New York, New York 10027, is desirous of acquiring the whole right, title and interest of ASSIGNORS in and to said Letters Patent and any continuations, divisions, extensions, substitutions, reissues and reexaminations thereof;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, BE IT KNOWN, that WE, the said ASSIGNORS, for and in consideration of the sum of One Dollar (\$1.00), lawful money of the United States, to us in hand paid by said ASSIGNEE, and other valuable considerations unto us moving from said ASSIGNEE, at or before the sealing and delivery of these presents, the receipt of which is hereby acknowledged, have sold, assigned, transferred and conveyed and by these presents do sell, assign, transfer and convey, unto said ASSIGNEE, its successors and assigns, the entire right, title and interest in and to the said invention entitled "SYSTEMS AND METHODS FOR FORMING DEFECTS ON GRAPHITIC MATERIALS AND CURING RADIATION-DAMAGED GRAPHITIC MATERIALS" and any and all improvements thereon, and in and to said application and any division, continuation or continuation-in-part thereof, and in and to any Letters Patent of the United States which may be issued on any of said applications, and any reissues thereof, and in and to any and all applications for Letters Patent filed in foreign countries for said invention or improvements including all priority rights, and any and all Letters Patent which may be granted in foreign countries therefor, TO HAVE AND TO HOLD THE SAME to the full end of the term or terms for which any and all said Letters Patent may be granted;

AND WE, the said ASSIGNORS, do hereby authorize and request the Commissioner of Patents and Trademarks to issue the said Letters Patent of the United States to said ASSIGNEE, as the assignee of the entire right, title and interest in and to the same, for the sole use and benefit of said ASSIGNEE, its successors and assigns;

AND WE, the said ASSIGNORS, for the considerations aforesaid, do hereby covenant and agree to and with said ASSIGNEE, its successors and assigns, that we have the full power to

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make this assignment, and that the rights assigned are not encumbered by any grant, license or right heretofore given, and that we, our executors or administrators, shall and will do all lawful acts and things and make, execute and deliver without further compensation, any and all other instruments in writing, further applications, papers, affidavits, powers of attorney, assignments, and other documents which, in the opinion of counsel for said ASSIGNEE, its successors and assigns, may be required or necessary more effectively to secure to and vest in said ASSIGNEE, its successors and assigns, the entire right, title and interest in and to said invention and improvements, applications, Letters Patent, rights, titles, benefits, privileges, and advantages hereby sold, assigned, transferred and conveyed, and that we will sign any applications for reissue which may be desired by the owner of the patent or patents which may be issued for the said invention or improvements.

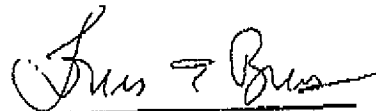
Date: _____ 2010

Witness: _____ [signature]

_____ [printed name]

SUNMIN RYU

_____ [address]

Notary PublicDate: Nov 23, 2010 2010Witness: Lingle Wang [signature]LINGLE WANG [printed name]503 W 124 St. 42B* [address]New York, NY 10027

LOUIS E. BRUS

~~Notary Public~~

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Date: _____ 2010

Witness: _____ [signature]

_____ [printed name]

_____ [address]

MICHAEL L. STEIGERWALD

Notary Public

Date: _____ 2010

Witness: _____ [signature]

_____ [printed name]

_____ [address]

HAITAO LIU

Notary Public

NY02:624383.1

ASSIGNMENT

WHEREAS, WE, SUNMIN RYU, a citizen of the Republic of Korea, having a residence address at 420 West 19th Street, Apt. 40, New York, New York 10027; LOUIS E. BRUS, a citizen of the United States, having a residence address at 25 Crossbar Road, Hastings, New York 10706; MICHAEL L. STEIGERWALD, a citizen of the United States, having a residence address at 1037 Vosseller Avenue, Martinsville, New Jersey 08836; and HAITAO LIU, a citizen of the People's Republic of China, having a post office address at 227 Station Square Boulevard, Lansdale, Pennsylvania 19446 (hereinafter "ASSIGNORS"), have made an invention entitled "SYSTEMS AND METHODS FOR FORMING DEFECTS ON GRAPHITIC MATERIALS AND CURING RADIATION-DAMAGED GRAPHITIC MATERIALS" as set forth and described in application for Letters Patent of the United States, Application Serial No. 12/770,242, filed April 29, 2010; and

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AND WE, the said ASSIGNORS, for the considerations aforesaid, do hereby covenant and agree to and with said ASSIGNEE, its successors and assigns, that we have the full power to

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make this assignment, and that the rights assigned are not encumbered by any grant, license or right heretofore given, and that we, our executors or administrators, shall and will do all lawful acts and things and make, execute and deliver without further compensation, any and all other instruments in writing, further applications, papers, affidavits, powers of attorney, assignments, and other documents which, in the opinion of counsel for said ASSIGNEE, its successors and assigns, may be required or necessary more effectively to secure to and vest in said ASSIGNEE, its successors and assigns, the entire right, title and interest in and to said invention and improvements, applications, Letters Patent, rights, titles, benefits, privileges, and advantages hereby sold, assigned, transferred and conveyed, and that we will sign any applications for reissue which may be desired by the owner of the patent or patents which may be issued for the said invention or improvements.

Date: Jul 24, 2010

Witness: Mr. Hyun Park (signature)

Mr Hyun Park (printed name)

224 Bansong, World-Bank Apt. 636-1002 (address)

Hwaseong, 145-753, Korea

Sunmin Ryu
SUNMIN RYU

Notary Public

Date: _____ 2010

Witness: _____ (signature)

_____ (printed name)

_____ (address)

LOUISE E. BRUS

Notary Public

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PATENT

Date: 9/16/ 2010
Witness: Mary Mandich [signature]
Mary Mandich [printed name]
1037 Vosseller Ave [address]
Martinsville, NJ 08836

Michael L. Steigerwald
MICHAEL L. STEIGERWALD

Notary Public

Date: _____ 2010
Witness: _____ [signature]
_____ [printed name]
_____ [address]

HAITAO LIU

Notary Public

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PATENT

Date: _____ 2010

Witness: _____ [signature]

_____ [printed name]

_____ [address]

MICHAEL L. STEIGERWALD

Notary Public

Date: 06/23 2010

Witness: [Signature] [signature]

Lan Deng [printed name]

227 station Square Blvd [address]

Lansdale, PA, 19446

[Signature]
HATTAO LIU

Notary Public

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