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FILE NO. AP32394

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RECORDATION FORM COVER
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U.S. DEPARTMENT OF COMMERCE
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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):
Roger N. Anderson, Albert Boulanger, Wei He, Jody Winston
Additional name(s) of conveying party(ies) attached?
☒ Yes ☐ No

2. Name and address of receiving party(ies)
Name: **The Trustees of Columbia University
in the City of New York**

3. Nature of conveyance:
☒ Assignment ☐ Merger
☐ Security Agreement ☐ Change of Name
☐ Other

Address: **116th Street and Broadway**

City: **New York** State: **NY** Zip: **10027**

Additional name(s) and address(es) attached? Country: **USA**

☐ Yes ☒ No

Execution Date: **July 28, 2003; July 15, 2003;
July 28, 2003; July 4, 2003;**

4. Application number(s) or patent number(s)
July 16, 2003; August 27, 2003; and July 15, 2003, respectively.

If this document is being filed together with a new application, the execution date of the application is:

A. Patent Application No.(s)

B. Patent No.(s)

09/687,813

Additional numbers attached?

☐ Yes

☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: **Jeffrey D. Sullivan, Esq.**

BAKER BOTTS L.L.P.

30 Rockefeller Plaza - 44 Fl.

New York, NY 10112

6. Total number of applications and patents involved: **1**

7. Total fee (37 CFR 3.41): **\$ 40.00**

☒ Enclosed

☐ Authorized to be charged to deposit account

8. Deposit account number:

02-4377 (Charge any additional fees to this account)

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9. Statement and signature

To the best of my knowledge and belief, the foregoing instrumentation is true and correct and any attached copy is a true copy of the original document.

Jeffrey D. Sullivan

Name of Person Signing

Signature

October 2, 2003

Date

Page **1** of **10**

Total number of pages including cover sheet, attachments and document: **10**

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PATENT
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RECORDATION FORM COVER SHEET
PATENTS ONLYU.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

10. Name of conveying party(ies):

Liquing Xu, Ulisses Mello, and Wendell Wiggins

11. Application number(s) or registration number(s):

A. Patent Application No.(s)

B. Patent Registration No.(s)

Page 2 of 10

Do not detach this portion

Mail documents to be recorded with required cover sheet information to:

**Commissioner of Patents and Trademarks
Box Assignments
Washington, DC 20231**

ASSIGNMENT

WHEREAS, WE, ROGER N. ANDERSON, a citizen of the United States, ALBERT BOULANGER, a citizen of the United States; WEI HE, a citizen of China; JODY WINSTON, a citizen of the United States; LIQUING XU, a citizen of China; ULISSES MELLO a citizen of Brazil, residing in New York, respectively; and WENDELL WIGGINS a citizen of the United States residing in Pennsylvania, whose post office addresses are Lamont-Doherty, 4D Technology, 102 Geoscience, 61 Route 9W, Palisades, NY 10964; Lamont-Doherty, 4D Technology, 102 Geoscience, 61 Route 9W, Palisades, NY 10964; Lamont-Doherty, 4D Technology, 102 Geoscience, 61 Route 9W, Palisades, NY 10964; Lamont-Doherty, 4D Technology, 102 Geoscience, 61 Route 9W, Palisades, NY 10964; Lamont-Doherty, 4D Technology, 102 Geoscience, 61 Route 9W, Palisades, NY 10964; IBM, Thomas J. Watson Research Center, Route 136, Yorktown Heights, NY 10598; Western Geophysical, P.O. Box 2469, Houston, TX 77252, respectively, have made jointly an invention entitled "PETROLEUM RESERVOIR SIMULATION AND CHARACTERIZATION SYSTEM AND METHOD" as set forth and described in application for Letters Patent of the United States, Serial No. 09/687,813, filed October 13, 2000; and

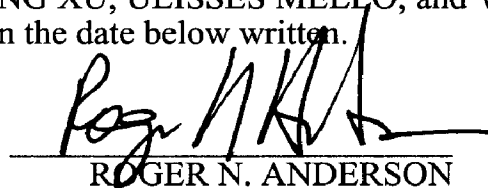
WHEREAS, THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK (hereinafter "COLUMBIA"), having its principal place of business at 116th Street and Broadway, New York, New York 10027, is desirous of acquiring the entire right, title and interest of the said ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS in and to said invention, and any and all improvements thereon, and in and to any and all United States and foreign patent rights to said invention and improvements;

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, BE IT KNOWN, that WE, the said ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS, 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 COLUMBIA, and other valuable considerations unto us moving from said COLUMBIA, at or before the ensealing 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 COLUMBIA, its successors and assigns, their entire right, title and interest in and to the said invention entitled "PETROLEUM RESERVOIR SIMULATION AND CHARACTERIZATION SYSTEM AND METHOD", as set forth and described in application for Letters Patent of the United States, Serial No. 09/687,813, filed October 13, 2000, and any and all improvements thereon, and in and to said application and any division, continuation, continuation-in-part, extensions and substitutions thereof, and in and to any Letters Patent of the United States which may be issued on any of said applications, and any reissues and reexaminations thereof, and in and to any and all applications for Letters Patent filed in foreign countries for said invention and improvements, 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 ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS, do hereby authorize and request the Commissioner of Patents and Trademarks to issue the said Letters Patent of the United States to said COLUMBIA, as the assignee of their entire right, title and interest in and to the same, for the sole use and benefit of said COLUMBIA, its successors and assigns;

AND WE, the said ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS, for the considerations aforesaid, do hereby covenant and agree to and with said COLUMBIA, its successors and assigns, that WE have the full power to 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 COLUMBIA, its successors and assigns, may be required or necessary more effectively to secure to and vest in said COLUMBIA, its successors and assigns, the entire right, title and interest of the said ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS 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 owners of the patent or patents which may be issued for the said invention or improvements.

IN WITNESS WHEREOF, WE, the said ROGER N. ANDERSON, ALBERT BOULANGER, WEI HE, JODY WINSTON, LIQING XU, ULISSES MELLO, and WENDELL WIGGINS, have hereunto set our hands and seals on the date below written.

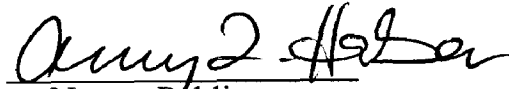

ROGER N. ANDERSON

STATE OF NEW YORK)

:ss.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this 28th day of July, 2003, before me personally came ROGER N. ANDERSON, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 28th day of July 2003.


Notary Public

SEAL

AMY L. HABER
NOTARY PUBLIC, State of New York
No. 01HA5063858
Qualified in Queens County
Commission Expires July 29, 2006


ALBERT BOULANGER

STATE OF NEW YORK)

:SS.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this 15th day of July, 2003, before me personally came ALBERT BOULANGER, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 15th day of July 2003.

AMY L. HABER
NOTARY PUBLIC, State of New York
No. 01HA5063858
Qualified in Queens County
Commission Expires July 29, 2006


Notary Public

S E A L

WEI HE

STATE OF NEW YORK)

:SS.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this ____ day of _____, 2003, before me personally came WEI HE, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this ____ day of _____ 2003.

Notary Public

S E A L

ALBERT BOULANGER

STATE OF NEW YORK)

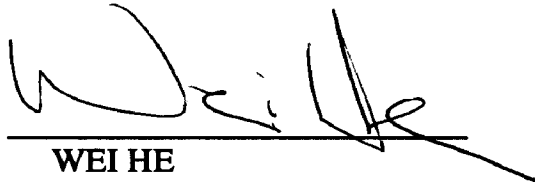
:ss.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this ____ day of _____, 2003, before me personally came ALBERT BOULANGER, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this ____ day of _____ 2003.

Notary Public

S E A L



WEI HE

STATE OF NEW YORK)

:ss.:

COUNTY OF NEW YORK)

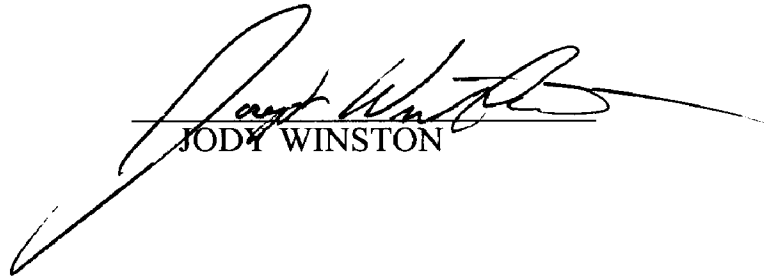
BE IT KNOWN, that on this 28th day of July, 2003, before me personally came WEI HE, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 28th day of July 2003.

AMY L. HABER
NOTARY PUBLIC, State of New York
No. 01HA5083858
Qualified in Queens County
Commission Expires July 29, 2006



Notary Public

S E A L

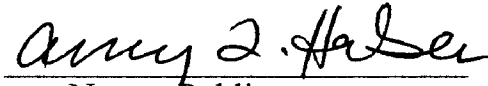


JODY WINSTON

STATE OF NEW YORK)
 :SS.:
 COUNTY OF NEW YORK)

BE IT KNOWN, that on this 4th day of July, 2003, before me personally came JODY WINSTON, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 4th day of July 2003.

AMY L. HABER
 NOTARY PUBLIC, State of New York
 No. 01HA5063858
 Qualified in Queens County
 Commission Expires July 29, 2006


 Notary Public

SEAL

 LIQING XU

STATE OF NEW YORK)
 :SS.:
 COUNTY OF NEW YORK)

BE IT KNOWN, that on this _____ day of _____, 2003, before me personally came LIQING XU, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this _____ day of _____ 2003.

 Notary Public

JODY WINSTON

STATE OF NEW YORK)

:SS.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this _____ day of _____, 2003, before me personally came JODY WINSTON, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this _____ day of _____ 2003.

Notary Public

S E A L



LIQING XU

STATE OF NEW YORK)

:SS.:

COUNTY OF NEW YORK)

BE IT KNOWN, that on this 16th day of July, 2003, before me personally came LIQING XU, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 16th day of July 2003.



Notary Public

AMY L. HABER
NOTARY PUBLIC, State of New York
No. 01HA5063858
Qualified in Queens County
Commission Expires July 29, 2006

S E A L

WENDELL WIGGINS

STATE OF _____)
:ss.:
COUNTY OF _____)

BE IT KNOWN, that on this ____ day of _____, 2003, before me personally came WENDELL WIGGINS, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this ____ day of _____ 2003.

Notary Public

S E A L



ULISSES MELLO

STATE OF NEW YORK)
:ss.:
COUNTY OF NEW YORK)

BE IT KNOWN, that on this 27 day of August, 2003, before me personally came ULISSES MELLO, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 27 day of August 2003.



Notary Public

S E A L

AMY L. HABER
NOTARY PUBLIC, State of New York
No. 01HA5063858
Qualified in Queens County
Commission Expires July 29, 2006

NY02:296863.1

Wendell Wiggins
 WENDELL WIGGINS

STATE OF NY)
)
 COUNTY OF NY) :ss.:

BE IT KNOWN, that on this 15th day of July, 2003, before me personally came WENDELL WIGGINS, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this 15th day of July 2003.

Amy L. Haber
 Notary Public

AMY L. HABER
 NOTARY PUBLIC, State of New York
 No. 01HA5063858
 Qualified in Queens County
 Commission Expires July 29, 2006

S E A L

ULISSES MELLO

STATE OF NEW YORK)
)
 COUNTY OF NEW YORK) :ss.:

BE IT KNOWN, that on this _____ day of _____, 2003, before me personally came ULISSES MELLO, to me known and known to me to be the person mentioned in and who executed the foregoing assignment, and he acknowledged to me that he executed the same as his free act and deed for the use and purposes therein mentioned. SUBSCRIBED AND SWORN before me, the undersigned authority, by on this _____ day of _____ 2003.

Notary Public

S E A L

NY02:296863.1

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