JOINT STUDY AGREEMENT

Agreement No. W1056109

This Joint Study Agreement ("Agreement") is entered into between University of Connecticut CSE Department ("University"), located at Computer Science & Engineering, University of Connecticut U-2155, Storrs, Connecticut 06269-2155 and International Business Machines Corporation, a New York corporation ("IBM"), through its Thomas J. Watson Research Center, located at 1101 Kitchawan Road, Route 134, Yorktown Heights, NY 10598.

1. Scope of Work

1.1 IBM and University will participate in a joint study in which the parties will work on incorporating mathematical topology into visualization from computers in order to characterize the visualization error. The work will take specific simulations (especially those used for molecular dynamics) and visualize these simulations while incorporating specific topological techniques incorporated in the visualization software. Subject to the terms of Articles 5.2 and 8.3, the parties may publish the results in scientific journals or periodicals.

1.2 At the end of the joint study, the Technical Coordinators will jointly prepare a final report summarizing the results of the joint study, and listing any Software developed, if applicable, all Sole Inventions and Joint Inventions conceived or first reduced to practice in the performance of the joint study, and the names, contact information, and country of citizenship of the developers/inventors.

2. Technical Coordinators/Personnel

2.1 The Technical Coordinators will be Thomas J. Peters, Professor of Computer Science and Engineering, Professor of Mathematics, for University, and Kirk E. Jordan, for IBM. Each Technical Coordinator will be responsible for exchanging information with the other party, coordinating any visits and arranging all other matters pertinent to this Agreement. Either party may change its Technical Coordinator by giving written notice to the other party.

2.2 For purposes of this Agreement, any University employee or representative who participates in the joint study is defined as a "University Representative". On an ongoing basis during the term of this Agreement, the University Technical Coordinator will identify to the IBM Technical Coordinator in writing each University Representative who will participate in the joint study and provide the IBM Technical Coordinator with a letter agreement in the form of Appendices B-1 and/or B-2 ("University Representative Letter Agreement") sufficient to ensure that IBM is granted the intellectual property rights specified in this Agreement, signed by each such University Representative prior to the University Representative performing work under this Agreement.

2.3 University and IBM will identify University Representative(s) who will perform the University's work under this Agreement at the IBM Thomas J. Watson Research Center. IBM will give the University Representative(s) access to IBM's facilities as appropriate to conduct the research work under this Agreement subject to the terms of Appendix A ("Activity on IBM Premises") and Appendices B-1 and/or B-2 ("University Representative Letter Agreement").
2.4 University agrees that University Representative(s) is familiar with safe handling practices with respect to materials and equipment the University Representative(s) will use while performing work under this Agreement.

2.5 University will be responsible for its Representative’s(s’) work at IBM. Except to the extent that any loss, cost, expense, or liability was caused by IBM’s negligence. University agrees to assume responsibility for any and all liability caused by University Representatives’ use of the facilities and equipment. Any claim against the University shall be filed with the Claims Commissioner pursuant to Chapter 53 of the Connecticut General Statutes.

2.6 Before a University Representative begins performing work under this Agreement at IBM, University will determine that the University Representative has the right to work under all applicable U.S. laws, including the U.S. Immigration Reform and Control Act, as amended. University will obtain all necessary documents and approvals required by the United States and any other government for the University Representative(s) to work under this Agreement. University will provide IBM with citizenship status of University Representative(s) in order to comply with U.S. Export Regulations.

2.7 IBM will provide access to its medical facilities to a University Representative working at IBM in cases of emergency. Upon starting work at IBM, the University Representative will provide the IBM Technical Coordinator with the name, address and telephone number of a personal contact for emergency situations.

2.8 IBM will not pay University or University Representative(s) for any work performed under this Agreement. University states that the University Representative(s) will be fully funded while at IBM. University confirms that these funding arrangements do not conflict with the terms and conditions of this Agreement.

2.9 IBM grants University Representative access to use certain IBM Blue Gene Watson Systems pursuant to the terms of Appendix D for so long as this Agreement is in force and effect.

3. Term and Termination

The term of this Agreement begins when the last signatory has signed this Agreement and ends one (1) year later. Either party may terminate this Agreement upon ten (10) days’ written notice to the other party.

4. Copyrights

4.1 “Software” means computer programs, computer program changes, computer program enhancements, and/or any documentation related to computer programs which is furnished or developed by either party in the performance of this Agreement. Each party agrees to provide the other party with one copy of any Software as it becomes available.

4.2 IBM grants to University an irrevocable, nonexclusive, worldwide and fully paid-up license to use, execute, display, reproduce, perform, prepare derivative works from, and distribute internally, any Software, and any other copyrightable materials furnished or developed by IBM under this Agreement.

4.3 University grants to IBM an irrevocable, nonexclusive, worldwide, and fully paid-up license for any Software and any other copyrightable materials furnished or developed by University under
this Agreement. This license includes the right to use, execute, display, reproduce, perform.
disclose, prepare derivative works from, and distribute and transmit (internally and externally)
such Software and copyrightable materials and derivative works, and to sublicense others to do
any or all of the foregoing.

4.4 Unless otherwise agreed upon by the parties in writing, neither party has authorized its employees
to furnish or develop as part of this Agreement, any software which is subject to any Open Source
Software license. Open Source licenses include, without limitation, those licenses which have
been approved by the Open Source Initiative ("OSI").

5. Inventions

5.1 “Invention” means any idea, design, concept, technique, invention, discovery or improvement,
whether or not patentable, conceived or first reduced to practice solely by one or more IBM
employees or by one or more University Representatives (“Sole Invention”), or jointly by one or
more IBM employees with one or more University Representatives (“Joint Invention”), in the
performance of work under this Agreement.

5.2 Each party will promptly provide to the other party a written description of each Invention. The
other party agrees to delay making public, by publication or otherwise, until the earlier of (1) the
first filing of a patent application claiming the Invention by the owning party or (2) six (6)
months after the date the Invention is disclosed to the other party, any Invention for which the
disclosing party has decided, or is in the process of deciding to seek patent protection.

5.3 Any Sole Invention will be the property of the inventing party, subject to a license granted to the
other party of the scope set forth in Article 5.4 for each Sole Invention and all patents issued on it.
Any Joint Invention will be jointly owned, and title to all patents issued on it will be joint, all
expenses (including those related to preparation, prosecution and maintenance) will be jointly
shared (except as provided below), and each party will have the right to license and assign its
ownership interest in the joint patent to third parties without need for consent from or accounting
to the other party. Where one party elects not to share equally in the expenses for a Joint
Invention, the other party will have the right to seek or maintain such protection for such Joint
Invention at its own expense and will have full control over its preparation, prosecution and
maintenance, even though title to any issuing patent will be joint. Each party agrees to give the
other party reasonable assistance in obtaining patent protection and in preparing and prosecuting
any patent application filed by the other party in connection with Joint Inventions, and will cause
to be executed all appropriate assignments and other instruments and documents.

5.4 All licenses for Sole Inventions granted to University and IBM under this Article 5 will be
worldwide, irrevocable, nonexclusive, nontransferable, and fully paid-up, and will include the
right to make, have made, use, have used, lease, sell. offer to sell, import and/or otherwise
transfer any product, and to practice and have practiced any method. All licenses granted to
University and to IBM in this Article will include the right of the grantee to grant revocable or
irrevocable sublicenses to its Subsidiaries, such sublicenses to include the right of the sublicensed
Subsidiaries correspondingly to sublicense other Subsidiaries.

5.5 “Subsidiary” will mean a corporation, company, or other entity:

i. more than 50% of whose outstanding shares or securities (representing the right to vote
for the election of directors or other managing authority) are, now or hereafter, owned or
controlled, directly or indirectly, by a party hereto, but such corporation, company, or
other entity will be deemed to be a Subsidiary only so long as such ownership or control exists; or

ii. which does not have outstanding shares or securities, as may be the case in a partnership, joint venture or unincorporated association, but more than 50% of whose ownership interest representing the right to make the decisions for such corporation. company or other entity is now or hereafter, owned or controlled, directly or indirectly, by a party hereto, but such corporation, company or other entity will be deemed to be a Subsidiary only so long as such ownership or control exists.

5.6 Each party agrees that it will not invoke the Cooperative Research and Technology Enhancement (CREATE) Act of 2004, 35 U.S.C. Section 103(c), without first seeking prior written permission from the other party.

6. Disclaimers and Limitation of Liabilities

6.1 IBM MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE SOFTWARE, COPYRIGHTABLE MATERIALS, MATERIALS, INVENTIONS, OR OTHER DELIVERABLES SUPPLIED UNDER THIS AGREEMENT. WHICH ARE ALL PROVIDED "AS IS". THE WARRANTIES THAT IBM (each party) EXPLICITLY DISCLAIMS INCLUDE THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY WARRANTY OF NON-INFRINGEMENT OF ANY THIRD PARTY'S INTELLECTUAL PROPERTY RIGHTS.

6.2 Except for the costs of indemnification under Article 2.5, neither party will be liable for any consequential damages, lost profits, lost savings, loss of anticipated revenue, or any exemplary, punitive, special or indirect damages, even if advised of their possibility.

7. Confidentiality

Except as provided in Article 5.2 regarding non-disclosure of Inventions, each party agrees not to disclose any information to the other party which is considered by the disclosing party to be confidential. Each party will be free to use and disclose any information provided by the other party for any purpose, subject to valid patent rights and copyrights.


8.1 The parties will make good faith efforts to complete the scope of work under this project. Failure to complete any projects under this agreement will not be deemed a breach of contract.

8.2 Except as explicitly provided in this Agreement, this Agreement does not grant any licenses, either directly or indirectly, by implication, estoppel or otherwise, to either party under any patent, copyright or other intellectual property right of the other party.

8.3 This Agreement does not confer any right to use in advertising, publications or promotional activities any name, trade name, trademark or other designation of either party (including any contraction, abbreviation or simulation of any of the foregoing). Each party agrees not to refer to this Agreement or its terms in any such activities without the express written approval of the other party. Notwithstanding the foregoing, the University may release nonproprietary information concerning the existence of the project, the general nature of the research, and the level and
duration of funding, as well as identify the other party, as required by U.S. Government direction or requirement. Applicable state law or University policies with respect to reporting requirements.

8.4 Each party agrees to comply and to reasonably assist the other in complying with applicable government export and import laws and regulations. Further, each party agrees that unless authorized by applicable government license or regulation, including but not limited to U.S. authorization, both parties will not directly or indirectly export or reexport, at any time, any technology, software and/or commodities furnished or developed under this or any other Agreement between the parties, or its direct product, to any prohibited country (including release of technology, software and/or commodities to nationals, wherever they may be located, of any prohibited country) as specified in applicable export, embargo, and sanctions regulations. Technology being furnished by IBM under this Agreement is classified under U.S. Export Administration Regulations as EAR99. In the event IBM seeks to transfer technology/source code under this Agreement with an export classification other than EAR99, IBM shall, prior to release, provide University Office of Sponsored Programs with the relevant Export Control Classification Number(s). This section will survive after termination or expiration of this Agreement and will remain in effect until fulfilled.

8.5 This Agreement does not create a joint venture, partnership, employment relationship or agency relationship between the parties.

8.6 Neither party may assign, or otherwise transfer, its rights or delegate its obligations under this Agreement without prior written consent of the other party. Any attempt to do so is void.

8.7 Except for claims arising out of Article 5, neither party may bring an action arising out of this Agreement, regardless of form, more than one (1) year after the cause of action has accrued.

8.8 Each party represents that it has appropriate agreements with its employees or others whose services the party may require, sufficient to enable it to comply with all the terms of this Agreement.

8.9 University is not obligated and will not assume any obligation which calls for a disposition of rights which is inconsistent with the terms of this Agreement.

8.10 If any provision of this Agreement is held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining terms will in no way be affected or impaired as long as the intent of the parties can be preserved.

8.11 This Agreement is governed by the laws of the Connecticut. The parties expressly waive the right to trial by jury in any matter which arises under this Agreement.

8.12 Any rights and obligations which by their nature survive and continue after the expiration of this Agreement will survive and bind the parties and their successors and assigns, until such obligations are fulfilled.

8.13 Any amendment or modification of this Agreement will be in writing and will be signed by authorized representatives of the parties.

8.14 All notices will be in writing and will be valid if sent by:
(a) registered or certified mail, return receipt requested, postage prepaid; (b) by facsimile (provided the receipt of the facsimile is evidenced by a printed record of completion of transmission); or, (c) by express mail or courier service providing a receipt of delivery. Notice will be effective upon receipt. The notices that are not of a technical nature as per Article ___ (currently Article 2.1) of this Agreement should be addressed to:

**IBM**

IBM Thomas J. Watson Research Center  
1101 Kitchawan Road, Route 134, Office 40-213  
Yorktown Heights, NY 10598  
Attn: Manager. Business and Government Relations

**University of Connecticut CSE Department**

University of Connecticut U-2155  
Computer Science and Engineering  
Storrs, Connecticut 06269-2155  
Attn: Thomas J. Peters, Professor of Computer Science and Engineering. Professor of Mathematics

8.15 This Agreement, including its Appendices, is the complete and exclusive agreement between the parties regarding its subject matter and supersedes any prior oral or written communications or understandings between the parties related to its subject matter.

8.16 This Agreement may be signed in one or more counterparts, each of which shall be deemed to be an original and all of which when taken together shall constitute the same Agreement. Any signed copy of this Agreement made by photocopy, facsimile or PDF Adobe format shall be considered an original.

By signing below, the parties agree to the terms of this Agreement.

**International Business Machines Corporation**

Patrick D. Canavan  
Manager, Business & Government Relations  
Date: October 22, 2010

**University of Connecticut CSE Department**

Michael Crouch  
Executive Director, Office for Sponsored Programs  
Date: 10/23/10

Read and Comply:

Thomas J. Peters  
Professor of Computer Science and Engineering. Professor of Mathematics  
Date: Oct 25, 2010
APPENDIX A

These terms supplement the Agreement and apply to University Representatives ("Representative(s)") when they are on IBM premises ("Premises").

IBM may require any Representative to promptly leave the Premises if he or she violates any IBM policy. University agrees, at IBM's request, to instruct its Representatives to leave the Premises and not to reassign the Representatives to work at IBM. IBM is not required to provide a reason for the request.

1. University will give IBM the names of Representatives who need access to Premises. The Representatives agree to visibly display their IBM-issued identification badge at all times while on Premises. Badges are only active for one month and must be renewed by the Representative by applying to IBM Security. Representatives agree to adhere to the IBM Technical Ethics Guidelines, which are attached as Appendix C.

2. Representatives working on Premises may only perform work covered by the underlying Agreement and will have access to Premises only during IBM's normal working hours.

3. Representatives will comply with local policies regarding sign-in, parking, emergency procedures, smoking and safety. On the first visit to IBM, Representatives will give the IBM Technical Coordinator an emergency contact. Representatives must promptly report to IBM any accident or injury in which they are involved on the Premises. They will provide IBM with a copy of the accident report they create or is created on their behalf.

4. Representatives are not eligible to participate in IBM activities which are not directly related to the Agreement. With prior written approval from the IBM Technical Coordinator, Representatives may use IBM's e-mail system in connection with the Agreement.

5. IBM's equipment and assets remain the property of IBM. Representatives will (a) use them only for the purpose of the Agreement; (b) not alter them without IBM's prior written permission; and (c) use them only on Premises unless otherwise provided in the Agreement. University will compensate IBM for any damage resulting from Representatives' use, excluding normal wear and tear. University will not permit any liens or attachments to be filed against the IBM equipment.

6. Representatives agree not to sell, advertise, or market any products or services or physically or electronically distribute printed, written or graphic materials on Premises.

7. Weapons of any kind are prohibited on Premises. IBM prohibits the on-Premises manufacture, sale, distribution, use, or possession of alcoholic beverages or controlled substances for non-medical purposes.

8. Representatives may not bring hazardous materials to or use them on Premises, unless authorized by IBM. All use must meet IBM's chemical security and other safety guidelines. These guidelines may require a criminal background check. IBM will not be responsible for the training of University Representatives in the proper use and handling of chemicals, equipment or other materials. On request IBM will make available guidelines for the handling of nanomaterials to Representatives who will be handling or in the presence of nanomaterials.

9. IBM is committed to providing an environment free from harassment. Harassment is unwelcome words or conduct that has the purpose or effect of unreasonably interfering with an individual's work performance or that creates an offensive or hostile work environment. Visitors are expected to refrain from harassment and may expect to be free of harassment. All incidents of harassment should be reported to IBM by calling IBM Research Security at tieline 8-862-2323 or (914) 945-2323. All complaints will be investigated promptly and dealt with appropriately.
APPENDIX B-1

UNIVERSITY REPRESENTATIVE LETTER AGREEMENT

Date: October 22, 2010

University of Connecticut CSE Department
Thomas J. Peters, Professor of
Computer Science and Engineering.
Professor of Mathematics
Computer Science & Engineering,
University of Connecticut U-2155
Storrs, Connecticut 06269-2155

Reference Agreement No.: W1056109
Term: Same as Referenced Agreement Number

IBM Manager Responsible: __________
User ID Required: Yes/No

Dear Professor Peters:

You acknowledge that you have read the terms of the above referenced Agreement. By signing below, you agree to comply with the terms of the Agreement (and any subsequent amendment thereto) regarding the disposition of intellectual property rights. In the event that you have not granted sufficient rights to the intellectual property that you create under the Agreement to University of Connecticut CSE Department ("University") to enable the University to convey to IBM the intellectual property rights specified in the Agreement, by signing below, you grant directly to IBM licenses to your intellectual property of the same scope as those granted to IBM by the University in the Agreement. In addition, you agree to comply with any requests from IBM to perfect the grant to such rights.

Furthermore, by signing below, you confirm that you are not obligated, and will not assume any obligation, that calls for a disposition of intellectual property rights that is inconsistent with the terms of the Agreement, including this Appendix. Such obligations may include, but not be limited to, sponsored research agreements, shared resources, consulting engagements, funding grants, and employment agreements. You agree to notify IBM immediately in writing if you believe any of these obligations to third parties may be applicable.

Please sign below to concur with the above, and to verify your country of citizenship for purposes of U.S. Export Regulation compliance. and return a signed and dated copy of this letter to Cal Kaplow, Contracts Professional, who will administer the Agreement, as a pdf file by e-mail to Kaplow@us.ibm.com. or by fax to 914-945-2460.

Accepted and Agreed to:

Name: ____________________________
IBM Manager Responsible:
Project Number to be charged: __________
IBM Manager: ____________________________
IBM Manager Serial No.: __________
Dept. No. __________ Date: __________

For Compliance with U.S. Export Regulations:
☐ US Citizens or Permanent Resident
☐ Foreign National List Country: __________
Appendix B-2

University Representative Letter Agreement

Date: ___________

University of Connecticut CSE Department | IBM Reference Agreement Number: W1056109
(Name) | Term: Same as Referenced Agreement Number
Computer Science & Engineering, University of Con | IBM Manager Responsible:
2155 | 
Storrs, Connecticut 06269-2155 | User ID Required: Yes/No

Dear __________,

You acknowledge that you have read the terms of the above referenced Agreement. By signing below, you agree to comply with the terms of the Agreement (and any subsequent amendment thereto) regarding the disposition of intellectual property rights. In the event that you have not granted sufficient rights to the intellectual property that you create under the Agreement to University of Connecticut CSE Department ("University") to enable the University to convey to IBM the intellectual property rights specified in the Agreement, by signing below, you grant directly to IBM licenses to your intellectual property of the same scope as those granted to IBM by the University in the Agreement. In addition, you agree to comply with any requests from IBM to perfect the grant to such rights. Furthermore, by signing below, you confirm that you are not obligated, and will not assume any obligation, that calls for a disposition of intellectual property rights that is inconsistent with the terms of the Agreement, including this Appendix. Such obligations may include, but not be limited to, sponsored research agreements, shared resources, consulting engagements, funding grants, and employment agreements. You agree to notify IBM immediately in writing if you believe any of these obligations to third parties may be applicable.

While the Agreement does not identify any IBM confidential information, you may be exposed to IBM confidential information if you visit IBM. You will be required to hold any information identified and/or marked IBM Confidential in trust and confidence for IBM. Although you are not considered an employee of IBM, you will be required to comply with the Security and Use Standard Guidelines for IBM Employees (Document ITCS300) and IBM Technical Ethics Guidelines. Your responsibilities for the protection of IBM’s information and assets will be further explained to you, as necessary, by the IBM Manager responsible for this Agreement. Additionally, you will be required to comply with all safety rules in the area in which you work.

Technology and software furnished under this agreement are subject to United States export/re-export control laws and regulations. You agree to comply with such laws and regulations, including complying with the terms of the US export license exception authorizing IBM to furnish the technology and software to you. Except as permitted by appropriate US government license, export license exception, or regulations, you agree not to export, directly or indirectly, any technology or software provided by IBM or their direct product to any of the following countries or to the nationals of any of the following countries, wherever they may be located: Armenia, Azerbaijan, Belarus, Cambodia, Cuba, Georgia, Kazakhstan, Kyrgyzstan, Iran, Iraq, Laos, Libya, Macau, Moldova, Mongolia, Myanmar (Burma), North Korea, People’s Republic of China, Russia, Sudan, Syria, Tajikistan, Turkmenistan, Ukraine, Uzbekistan, and Vietnam. You acknowledge these obligations survive the termination of any agreement under which the technology and/or software was provided to you.

IBM does not wish to receive any confidential information from you. It is understood that any information received by IBM will not be of a confidential nature to you or any third party, nor will IBM’s receipt of such information establish a confidential relationship of any kind.

Please sign below to concur with the above, and to verify your country of citizenship for purposes of U.S. Export Regulation compliance, and return a signed and dated copy of this letter to Cal Kaplow, Contracts Professional, who will administer the Agreement, as a pdf file by e-mail to Kaplow@us.ibm.com, or by fax to 914-945-2460.

Accepted and Agreed to:

Name: ___________
Date: ___________

For Compliance with U.S. Export Regulations:
☐ US Citizens or Permanent Resident
☐ Foreign National List Country: ___________

IBM Manager Responsible:
Project Number to be charged: ___________
IBM Manager:
IBM Manager Serial No.: ___________
Dept. No. ___________ Date: ___________
Appendix C: IBM Technical Ethics Guidelines - Global

1.0 Introduction

IBM is judged in the scientific community and the world at large by your actions as a member of our worldwide technical community. At a university, papers are usually yours or your group’s alone, but at IBM and other industrial and national labs, papers are most often viewed as yours and the lab’s. A question about your conduct becomes a question about the lab’s conduct.

IBM has long had high standards for ethical conduct, as well as exacting, if unwritten, professional standards for research and development. These ethics guidelines capture and clarify these long-standing expectations of how members of our diverse, worldwide technical community will conduct themselves.

These guidelines apply to all employees:

i. who are, or expect in the next twelve months to be, actively engaged in IBM-sponsored research or development, the results of which may be published in scientific or scholarly journals (including on-line journals) or presented at scientific or technical meetings;

ii. who will serve as peer reviewers, journal authors, conference organizers, or similar roles in which they may spot research misconduct;

iii. who are working on any federally-funded project, including grants and contracts, or on proposals or applications for such projects; and

iv. who manage covered employees.

These guidelines also apply to academic visitors who will participate in research with IBM and will be at our premises for more than three months. In addition, as an institution which receives federal grants and contracts, IBM must observe the federal guidelines for responding to allegations of research misconduct occurring at IBM or involving research, research training projects, or employees of IBM, regardless of whether the project is federally-funded.

The guidelines do not apply to employees who write articles solely for the mass media or participate in other forms of external communications which are covered by existing IBM rules for dealing with the press. These guidelines represent the minimum standard for members of IBM’s technical community. Country or technical society best practices may have higher standards, in which case you should follow the best practice, provided you also meet the IBM Guidelines.

2.0 Short guidelines

a. You must not engage in fabrication, falsification, or plagiarism (collectively, “research misconduct”) in the conduct of research for IBM. Research misconduct is cause for discipline. Research misconduct does not include honest error or difference of opinion.

b. You must avoid other conduct which is intended to or has the effect of misleading the public, funding entities, or other researchers about your research. You have a duty to take steps to avoid misunderstanding about your research, such as responding to reasonable inquiries from the scientific community about published works and promptly acknowledging and correcting errors in published work.

c. You must keep project files for your research for at least ten years following publication.
d. You must be alert to potential conflicts of interest and respond appropriately, such as by disclosing the potential conflict to the interested parties or withdrawing from the conflicted activity.

e. Only individuals who have contributed significantly to the concept, design, execution, or interpretation of research should be listed as authors. All co-authors bear some responsibility for the entire paper and must be familiar with the contribution of each author and how the contributions fit together to produce the conclusions. Co-authors must also be ready to respond to reasonable questions from the scientific community.

f. If you become aware of possible misconduct on a project in which IBM is participating, you must report it to someone in your management chain or to Techeth@us.ibm.com. You may also contact Techeth@us.ibm.com if you have questions about these guidelines.

3.0 Avoiding research misconduct

You must not engage in fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results ("research misconduct"). These offenses are now explicitly defined in U.S. federal guidelines on research misconduct, which also include procedures for handling accusations of and penalties for such conduct. In the federal guidelines, research misconduct centers on fabrication, falsification, and plagiarism, as defined here.

3.1 Fabrication means making up data or results and recording or reporting them.

3.2 Falsification means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record.

3.3 Plagiarism means the appropriation of another person’s ideas, processes, results or words without giving appropriate credit. In addition to violating the federal guidelines, wholesale copying of another author’s writing may also violate copyright law, prompting the publishing journal to take action against the plagiarist.

Research misconduct does not include honest error or differences of opinion. But the refusal to respond promptly and fully to inquiries about questioned research results can make an honest error appear to be something more serious. Nor does research misconduct include failure to meet the guidelines on other topics, such as conflict of interest or authorship obligations, or accepted best practices on matters other than falsification, fabrication, and plagiarism. Research misconduct may be disciplined in a variety of ways, including termination. Violators of other IBM guidelines, such as the Business Conduct Guidelines, are also subject to discipline.

In keeping with the federal guidelines, research misconduct will only be found: i) if there is a significant departure from accepted practices for maintaining the integrity of the research record, ii) the misconduct was committed intentionally, knowingly, or with reckless disregard of accepted practices, and iii) the allegation is proven by a preponderance of the evidence.

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1 See the U.S. federal Office of Science and Technology Policy Web site at http://www.ospi.gov. Local technical management is responsible for being familiar with local requirements which differ from, and are more stringent than these guidelines and making local members of the community aware of them.
4.0 Other inappropriate conduct

Inappropriate conduct in research is not limited to the very clear acts proscribed by the U.S. federal guidelines. Less stark behavior, such as publishing without appropriately stating conditions under which a test was carried out: making unfair or misleading comparisons of data or test conditions; and republishing results as if for the first time, can erode confidence in the individual and the institution he or she belongs to. Members of IBM’s technical community are expected to meet the standards and best practices of their scientific and technical communities, including:

a. accurately recording, documenting and reporting results inside IBM as well as externally.²
b. properly crediting other researchers and citing prior related work.
c. appropriately responding to reasonable inquiries from responsible colleagues about published work, and
d. promptly acknowledging and correcting errors in published work.

If you doubt whether an inquiry about a published work is reasonable and calls for a response, discuss it with your manager or colleagues.

To be prepared to meet these obligations, you must keep files from your research for at least ten years following publication.

Many other acts which don’t amount to research misconduct are covered by IBM’s Business Conduct Guidelines, which govern in the event of a conflict with these Technical Ethics Guidelines.

5.0 Avoiding scientific conflict of interest

Scientific conflict of interest may arise between your activities or obligations as a technical employee of IBM and those as a member of an external technical community. Scientific and business conflict of interest is similar in that both involve divided loyalties which may prevent a person from properly serving more than one master. They are different in that a scientific conflict of interest may often be handled acceptably by disclosing it outside IBM and subjecting it to scrutiny,³ rather than by eliminating it.⁴ You must be alert to conflicts between your role as an IBM employee and role in another capacity, and respond appropriately.

A conflict may also arise when it is in the interest of the scientific community to publish research results and in IBM’s interest to keep them confidential. For instance, publication may be delayed until a patent application has been filed or published, or certain details may be withheld from publication because they are IBM trade secrets. With the help of your management, you are expected to balance the company’s need for confidentiality with scientific openness. If you receive a reasonable scientific inquiry which can only be answered by disclosing IBM confidential information, work with your management to determine whether the information can

² This requirement applies to all documents created in doing and applying research and technical work, including software Certificates of Originality.
³ Occasionally this may include conducting research under observation.
⁴ An example of a potentially conflicted situation follows. A researcher has a significant financial stake in a company which will be directly affected by reported research, and fails to declare that stake in the publication. The researcher must disclose such a conflict to the publishing journal and meet additional requirements for dealing with conflict if the journal has any.
be declassified as confidential and disclosed in response to the inquiry. In general, once you decide to publish, you should be prepared to disclose the details of how you reached a result in your research.

6.0 Authors and editors

You must be familiar with the rules and practices on authorship and credit of journals to which you submit articles. Unless a journal directs otherwise, only those who have contributed significantly to the concept, design, execution, or interpretation of the research should be listed as authors. People whose contributions do not rise to this level should be credited, without being named as an author. In addition, writers should identify outside sources of project funding, such as government grants.

It is difficult to state bright-line rules for the accountability expected of authors of and contributors to scholarly articles. At a minimum, an author should be able to describe what each collaborator did (such as key details of measurements, calculations, and coding), what each one learned from that part of the work, and how the results from each collaborator fit together to support the conclusions. An author should also be prepared to respond to all reasonable questions from the scientific community and to provide additional data if called for. Each author should have a sufficient grasp of the entire work to be able to direct questions to the appropriate author. Rarely will an author be excused from all responsibility for an aspect of a published article because he or she didn’t work on it directly.

The National Academy of Sciences has developed a statement of principles of responsible authorship, which is based on those of the American Physical Society. The statement is quoted here:

"All collaborators share some degree of responsibility for any paper they co-author. Some co-authors have responsibility for the entire paper as an accurate, verifiable report of the research. These include co-authors who are accountable for the integrity of the data reported in the paper, carry out the analysis, write the manuscript, present major findings at conferences, or provide scientific leadership to junior colleagues. Co-authors who make specific, limited, contributions to a paper are responsible for their contributions, but they may have only limited responsibility for other results. While not all co-authors may be familiar with all aspects of the research presented in their paper, all collaborators should have in place an appropriate process for reviewing the accuracy of the reported results."

IBM recommends use of this statement of principles to resolve questions of authorship.

You have special responsibilities when you are acting as an editor of a technical publication, referee, peer reviewer, or organizer of a technical conference or symposium or another event in which you are responsible in some way for the work of others. You should be aware of whether the work is new or retraces old ground. If you suspect that work which is presented as new may not be, you should make the journal editor aware of this possibility, being sure to provide the basis for your concern. If the work is by an IBM author, you should also notify IBM management. Whoever is the author, you also must follow up on claims from reviewers or other responsible people of research misconduct by authors of submitted papers or misuse of

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information learned by peer reviewers. Further, you must identify apparent instances of plagiarism and other misconduct by authors, as well as failure to properly reference prior work.

7.0 Handling allegations of internal research misconduct

By U.S. law and the terms of many government contracts, IBM has a duty to investigate and in some cases report to the U.S. government instances of alleged research misconduct. For this reason, members of IBM's technical community who become aware of possible research misconduct inside IBM or in a joint project with another entity must report it to a person in their management chain or to the Technical Ethics Corporate Contact at Techeth@us.ibm.com. A visitor should report possible research misconduct to his or her IBM host. A first-line manager who receives such a report must report to his or her second-line manager, who will advise on the appropriate response. Failure to report or failure by a manager to act on a report of research misconduct made by another member of IBM's technical community may itself be cause for discipline. A manager who is able locally to resolve instances of inappropriate conduct which fall short of misconduct need not report.

IBM will investigate allegations of internal research misconduct in a manner consistent with the requirements of funding agencies and IBM's own practices. Typically, this will include an initial review of the allegation to determine whether an investigation is called for, followed by the investigation itself and then a decision based on the results of the investigation.

IBM will respond to a finding of research misconduct by corrective action (such as publishing a retraction or a statement about credit) and by disciplining the responsible employees. An individual who is not an employee and who is found to have engaged in research misconduct may be asked to leave IBM and to take steps to correct the record.

An IBM employee who has questions on these guidelines which can't be answered by his or her manager should contact Techeth@us.ibm.com.  

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6 Selected Resources. Many public and private, for-profit and not-for-profit entities have policies and guidelines about scientific ethics. They include the U.S. government and entities they sponsor (e.g., the Office on Science and Technical Policy and the National Science Foundation); technical societies (e.g., the American Physical Society); and universities, some of which provide materials not just for themselves but for the broader scientific community. These materials could help IBM employees analyze ethics issues which they encounter in their IBM work.
APPENDIX D

BLUE GENE ACCESS

All capitalized terms used but not defined herein shall have the same meaning as the Joint Study Agreement W1056109 ("Agreement"). If there is any conflict between the terms of the Agreement and this Appendix D, the terms of this Appendix D shall prevail.

1.0 Scope of Work

IBM: (i) grants University access on site or via the internet, at no cost, to use certain IBM Blue Gene Watson Systems (BGW); and (ii) will allow University representatives use of BGW and the object code of IBM's Blue Gene/L operational software (IBM Software) on BGW.

2.0 Technical Coordinators

The Technical Coordinators for this Agreement will be Tom Peters, for University, and Kirk Jordan, for IBM. They will arrange all matters necessary to carry out this Agreement, other than contract amendments.

3.0 Responsibilities

IBM will give University access to at least one of the BGWs attached to IBM’s Local Area Network (LAN to enable and test University Software). Availability is subject to scheduled maintenance and unanticipated conditions. University will establish commercial access to the internet at its expense. In doing so University will observe applicable laws and regulations and rights of third parties. University will remove its Software (as defined in Article 5.0) from the BGW when it is done using BGW but no later than the end of the Agreement. University will use the BGW attached to the IBM LAN to enable and test University Software. Unless this Agreement permits it, University will not copy or erase any code or data from any of the BGWs.

University will prevent any viruses or Harmful Code from entering IBM as a result of University’s internet access. "Harmful Code" means any computer programming code constructed with the intent or likelihood of damage to or interference with other computer programs, data files or hardware, without the knowledge or consent of the computer user, and includes self-replicating and self-propagating program instructions such as viruses, worms, or the like.

University will promptly notify IBM if University discovers or suspects that Harmful Code has entered IBM, and IBM may take any steps to protect BGW and the LAN without notice to University, including, without limitation, termination of University’s access rights set forth in Article 1.

University has identified in Attachment 1 all Software, including third party and open source Software that it intends to download onto the BGW and the applicable government restrictions, security classifications, and export controls for the Software. At least five business days prior to using BGW, University will update this list in writing if there are any changes.

University will use reasonable care to fulfill its obligations under this Agreement. University will cooperate with IBM in handling any third party claims arising out of University’s activities under this Agreement.

NEITHER PARTY WILL BE LIABLE TO THE OTHER FOR ANY INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, (INCLUDING LOST PROFITS OR REVENUE) INCURRED BY THE OTHER PARTY OR ANY THIRD PARTY, WHATEVER THE FORM OF THE ACTION WHETHER IN CONTRACT, TORT, OR OTHERWISE, EVEN IF THAT PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. ACCESS TO AND USE OF THE BGW, LAN AND ANY RELATED SERVICES ARE PROVIDED WITHOUT WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

4.0 Security and Use Standards

University, with assistance from IBM, will control access to the BGW(s) via the facilities provided on the BGW(s). All University equipment which accesses the BGWs will be physically and technically protected, including without limitation, screen and keyboard locks, and will prevent IP forwarding or other services such as DNS or DHCP, and maintain security for University’s facilities and its computer network.
University agrees to protect all passwords from unauthorized users and use.

University will not: (i) use the internet connection, BGW, or LAN for non-Blue Gene related activity (ii) connect remote devices to BGW or the LAN for non-Blue Gene related activity; (iii) use BGW, the LAN, or connected University equipment for any unlawful or improper activity; (iv) provide this Agreement to any other entities; or (v) use the BGW name or IBM trademark, or refer to University’s use of the BGW other than for academic purposes without IBM’s prior written approval.

If University violates any of the foregoing security and use standards, IBM may, in its discretion, terminate University’s access rights set forth in Article 1 without notice.

University agrees to hold IBM harmless from and indemnify IBM for any damages or claims for damages arising from University’s activities under this Agreement including but not limited to University’s access to BGW, introduction of harmful code onto BGW, security breaches that occur when University is connected to BGW or University’s unlawful or improper activity.

5.0 Copyrights

"Software" means computer programs, computer program changes, computer program enhancements, and/or any documentation related to computer programs. University Software is owned by University or provided by University which is third party or open source software, all for use on BGW. University represents that it has the right to use all University Software that is run on BGW under this Agreement. University agrees not to provide or expose any University Software to IBM except for providing a copy to IBM to load on BGW. IBM will not provide any bug fixes or services which require exposure to University Software. The parties will not develop any Software under this Agreement.

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6.0 Export Regulations

The Parties agree to comply and to reasonably assist the other in complying with applicable government export and import laws and regulations. Further, each party agrees that unless authorized by applicable government license or regulation, including but not limited to U.S. authorization, both parties will not directly or indirectly export or reexport. at any time, any technology, software and/or commodities furnished or developed under this or any other Agreement between the parties, or its direct product, to any prohibited country (including release of technology, software and/or commodities to nationals, wherever they may be located, of any prohibited country) as specified in applicable export, embargo, and sanctions regulations. University also agrees to comply with U.S. prohibitions on delivery of technology, software and/or commodities and providing services to certain end users and for certain end uses including, but not limited to, the following end uses/end users: nuclear facilities, space or missile, and weapons systems (including chemical and biological).

Further, University understands and acknowledges that IBM may use its global resources, including but not limited to the use of non-U.S. nationals and/or hosting of data in non-U.S. countries for delivery of Services under this agreement.

University warrants, to the best of its knowledge, that none of the University data exported to, or otherwise accessible by, IBM under this Agreement is controlled as a defense article under the U.S. International Traffic in Arms Regulation (ITAR) or under any other country’s laws or regulations.

University further warrants to the best of its knowledge, that none of the University data exported to or otherwise accessible by IBM under this Agreement requires an export license. University agrees to provide all information necessary, in connection with the Access, to determine all relevant export authorizations including, but not limited to, providing the information requested in Attachment 1. University shall be fully responsible for the correctness of information provided and any use of it to comply with applicable regulations.
This section will survive after termination or expiration of this Agreement and will remain in effect until fulfilled.

7.0 General Provisions

University agrees to comply with applicable export laws and regulations.

University's right to access and use BGW may not be transferred to anyone else. Each party represents that it has agreements with its employees or contractors sufficient to meet its obligations under this Agreement.

This Agreement will be governed by the laws of the State of Connecticut and the parties waive the right to trial by jury.

Without written approval from the other party, this Agreement does not confer any rights to, a) use in advertising, publicity or other marketing activities any name, trade name, trademark, or other designation of either party, or b) refer to this Agreement or its terms in any such activities.

This Agreement may only be modified by mutual written consent. If any provision of this Agreement is held to be unenforceable, the enforceability of the remaining provisions will not be affected as long as the intent of the parties can be preserved.
ATTACHMENT 1

I. Description of the Software

University Owned: None

Third Party Owned: None

Open Source Software: None

II. Identification of Applicable Government Restrictions, Security Classifications, Export Controls, etc. for Software