

Strategic Alliance for the Implementation of New Technologies (SAINT) Agreement

This Agreement is made and entered into as of August 1, 2005 (“Effective Date”) by and between the California Institute of Technology (“Caltech”), the University of Chicago, Columbia University, the Max Planck Institute for Radio Astronomy (Bonn) (“Max Planck”), the Chancellor, Masters and Scholars of the University of Oxford (“Oxford University”), Princeton University, Stanford University, the University of Manchester, and the University of Miami, (collectively “Collaborating Institutions”). The Collaborating Institutions hereby establish the Strategic Alliance for the Implementation of New Technologies (“SAINT” or “Consortium”).

WHEREAS, the Collaborating Institutions recognize that continued innovation is critical in the competitive climate of radio astronomy; and

WHEREAS, Llano de Chajnantor in Chile, which is at 16,700 feet above sea level is a premier site for radio astronomy; and

WHEREAS, Caltech has dedicated over four million dollars (\$4 million) to build a Test Bed Facility (“TBF”) on the Llano de Chajnantor in Chile (“Chajnantor TBF”); and

WHEREAS, the Collaborating Institutions have formed SAINT to carry out a well-focused attack on fundamental physics problems that can be addressed by observations of the cosmic microwave background (“CMB”) and of a variety of astrophysical foregrounds; and

WHEREAS, SAINT expects a steady flow of publications coming from analysis of data taken at the TBF, on both the performance of new devices and science from observations at the TBF; and

WHEREAS, while the operating costs of the Chajnantor TBF are modest, they represent a significant hurdle for new projects wishing to develop technologies that require superb atmospheric conditions; and

WHEREAS, forming SAINT to spread the burden of operations costs of the Chajnantor TBF allows the Collaborating Institutions to place prototype detectors and other instruments at the TBF at relatively low cost and make proposals to the National Science Foundation (“NSF”) and other funding agencies much more competitive, hence removing the relative advantage that is presently afforded programs that do not have to cover their own infrastructure costs;

NOW THEREFORE, in order to accomplish the scientific purposes outlined above and in consideration thereof, the Collaborating Institutions agree as follows:

I. Consortium

For purposes of undertaking these scientific endeavors, the Collaborating Institutions shall refer to themselves as the Strategic Alliance for the Implementation of New Technologies (“SAINT” or “Consortium”). SAINT may, by the unanimous consent of the Collaborating Institutions, agree to admit additional institutions to SAINT subject to the terms and conditions set forth herein, or to any amendment to this Agreement. If any additional institutions join SAINT, they shall become signatories to this Agreement.

II. Facilities

A. Description

The Chajnantor TBF is the best site in the world which is easily accessible year round, for millimeter and submillimeter observations. It includes a power plant with two 230 KVa generators, containers housing living quarters for two (including a bathroom and shower) a control building, a laboratory, a machine shop, and a triaxial telescope mount, which, for the next three (3) years, is dedicated to the QUIET Project, which is presently a collaboration of Caltech, the Jet Propulsion Laboratory (a division of Caltech), the University of Chicago, Columbia University, Oxford University, Princeton University, Stanford University, and the University of Miami. It also includes a base rented from a hotel in San Pedro at 9,500 feet altitude including bedrooms, offices, and a kitchen. The Chajnantor TBF has an experienced staff of engineers, technicians and a secretary. Most of the living and working spaces at 16,700 feet are oxygenated and have heat and light.

B. Caltech Management

The Chajnantor TBF is owned by Caltech, and the facilities are managed by Caltech through contracts with local entities.

III. Funding

A. Operating & Developmental Costs

Capital costs and funding for the Chajnantor TBF of over four million dollars (\$4 million) were paid by Caltech. In order to meet the annual operating and developmental costs and expenses of approximately four hundred thousand dollars (\$400,000) per year that are required to maintain the Chajnantor TBF, in exchange for Caltech making the Chajnantor TBF available to the Collaborating Institutions, each Collaborating Institution agrees to pay \$36,000 per year. Such payments will be made to Caltech, which will continue to manage the site operations through contracts with local entities. Caltech intends to set up an overhead-free account to administer the funds, which will be subject to normal Caltech accounting rules and practices. Payment responsibilities run from August 1st of each year through July 31st. The first payments shall be made either before

or within 30 days of a party signing this Agreement. Payments for following years shall be made by August 1st of each year.

B. Additional Institutions

In the event that additional institutions join SAINT pursuant to this Agreement, each such additional institution shall pay an equal amount towards the operating and developmental costs to that paid by the Collaborating Institutions. Each time an additional institution joins SAINT, a new budget will be prepared addressing the use of the additional funds, including but not limited to whether the additional funds should be used to provide contingency funding for items that may have increased in price, to fund improvements, or to allow the contributions of all the institutions to be lowered.

IV. Governance

A. Science Steering Committee

1. In order to meet the scientific objectives set forth above, SAINT shall form a Science Steering Committee (“SSC”) whose role is to establish policy for the allocation of engineering and observing time, to determine the schedule of observing time, and to make recommendations to the Director regarding the use of financial resources. Over the period of this Agreement and any extensions, scientific priorities are expected to shift. The SSC shall prepare an annual report for submission to the Collaborating Institutions at such time as the upcoming year’s \$36,000 payments are due. The annual report shall include a summary of the previous year’s budget and a projection of the upcoming year’s expenses.

2. The SSC shall initially consist of ten (10) members as follows: one (1) member from each of the following: Caltech, the University of Chicago, Columbia University, Max Planck, Oxford University, Princeton University, Stanford University, the University of Manchester, and the University of Miami. In addition, the Jet Propulsion Laboratory (a division of Caltech) shall have one member. At a later date, the SSC may establish an executive committee to make recommendations to the SSC on certain matters.

3. Each member shall be entitled to one (1) vote. Recommendations made by the SSC shall require a 2/3 vote of the full membership of the SSC.

4. It is the intention of the parties that the members of the SSC shall serve for the initial term of this Agreement. However, if any member of the SSC is unable to serve, the institution appointing such member shall have the right to appoint another member to fill the position.

5. In the event additional institutions join SAINT, they each shall have one (1) representative, who shall be entitled to participate fully in the affairs of the SSC and who shall be entitled to one (1) vote.

B. Director

SAINT shall have a Director, who shall be a Caltech employee, and who shall be Caltech's member of the SSC. The inaugural director will be Anthony C. S. Readhead.

C. No Employees

SAINT shall conduct its business, manage its affairs, pursue its research and operate by the faculty, staff, and other personnel and contractors of its Collaborating Institutions. The Collaborating Institutions shall retain all employment and contract rights, responsibilities, and authority, respectively, for these individuals, which shall not be superseded in any manner by the operation of this Agreement. Each Collaborating Institution shall be solely responsible and liable for the actions of its respective employees.

D. Submission of Grant and Contract Proposals

SAINT shall have no independent authority to submit any grant or contract proposals in its own name. However, grant and contract proposals to be submitted to the NSF and other extramural funding agencies, corporations, and entities which relate to research to be performed at the Chajnantor TBF shall be coordinated among the Collaborating Institutions through the SSC.

V. Term

A. The Agreement shall begin as of the Effective Date and shall continue for three (3) years, unless terminated earlier or renewed or extended as set forth in this section.

B. It is anticipated that the Collaborating Institutions may wish to extend the term of this Agreement. At least one (1) year prior to the expiration of this Agreement, the parties may, by the written consent of 2/3 of the Collaborating Institutions, agree to extend this Agreement for successive three (3) year terms; provided however, that Caltech, as the owner of the facility has the right to override such decision to extend, in which case this Agreement shall not be extended and SAINT shall be terminated. Any agreement to extend the term shall be made as early as possible, but no later than one (1) year prior to the expiration of the Agreement.

C. Collaborating Institutions may, in the first year of the Agreement, withdraw from SAINT by giving three (3) months written notice to Caltech and the SSC. In years following the first year, including any extensions of the term of this Agreement, Collaborating Institutions may withdraw from this Agreement by giving one-year (1)

written notice to Caltech and the SSC. Upon the effective date of their withdrawal from this Agreement (one year after providing notice), the Collaborating Institution shall cease to be a party to SAINT. The one (1) year notice period is intended to enable the remaining SAINT institutions to seek replacement partners and/or additional funding from their own institutions to maintain SAINT. Despite this withdrawal provision, all parties represent that they have entered into this Agreement in good faith with the intention of continued collaboration under its provisions for at least the initial term of the Agreement. If, due to the withdrawal of one or more parties, it is no longer feasible to operate the Chajnantor TBF, Caltech shall inform the other parties and this Agreement shall terminate as of the following July 31st.

VI. Non-SAINT Projects

Caltech, as owner of the Chajnantor TBF, retains the right to bring other (non-SAINT) projects to the Chajnantor TBF on a non-interfering basis with QUIET or other SAINT activities. Caltech will look closely at any potential new users to ensure that there is no interference with the SAINT activities or with SAINT's priority use of resources defined herein. Prior to bringing any other projects to the Chajnantor TBF, Caltech will fully discuss the matter with the SSC to ensure that SAINT objectives are not compromised by other projects.

VII. Publications

SAINt expects a steady flow of publications coming from analysis of data taken at the Chajnantor TBF, on both the performance of new devices and science from observations at the Chajnantor TBF. The parties agree to encourage joint publication and agree that authorship will include all researchers with substantial contribution to the research leading to the publication. All publications will formally acknowledge that the research was accomplished at the Llano de Chajnantor TBF.

VIII. Intellectual Property & Data

Intellectual Property (inventions or computer software) that is invented or created by the parties or their contractors during the period of this Agreement and any extensions hereto shall each be owned according to the patent and copyright laws of the United States. Thus, if the inventors or authors of any Intellectual Property are employees or contractors of one party, that party shall be the sole owner of that Intellectual Property, and if employees or contractors of more than one party are inventors or authors of Intellectual Property then each of those parties shall be a joint owner of that Intellectual Property. In the case of jointly owned Intellectual Property, the parties who are joint owners agree to enter into inter-institutional agreements setting forth their respective rights and obligations with regard to protection and commercialization of the jointly owned Intellectual Property. To the extent that it is not precluded by the terms of any funding awarded to the Collaborating Institutions(s) generating such Intellectual Property in response to a grant or contract proposal as contemplated in paragraph IV.D above, the other parties shall have a license to use all Intellectual Property for educational and non-

commercial research purposes, such license to exist only during the term of the Agreement and while such parties continue as Collaborating Institutions pursuant to this Agreement.

IX. Export and Import Laws and Regulations

The parties agree to comply with all applicable U.S. export control laws and regulations in the conduct of the joint research activities conducted under this Agreement and each party agrees to obtain export licenses or other export authorization, as may be required, prior to exporting any controlled items or technology. The parties also agree to comply with the applicable import laws and regulations of Chile.

X. Observing Time

Ten percent (10%) of time on the TBF must be offered to the University of Chile for use by Chilean astronomers. The SSC will determine the schedule of observing time.

XI. Orderly Unwinding

At the time of the expiration or early termination of this Agreement and any extensions, the parties agree to cooperate in an orderly unwinding of the arrangements entered into in support of SAINT. Any party removing or relocating instruments or equipment, the removal or relocation of which might damage other equipment, agrees not to remove such equipment except with the consent of the party whose equipment may be damaged, in a manner agreed to between such parties. Each party shall give the other parties one hundred and twenty (120) days prior written notice before removing or relocating such instrument or equipment. Each party shall pay the costs of relocating or removing their own equipment. Any costs for removing or relocating equipment shared by the members of SAINT shall be shared by the Collaborating Institutions as determined by the SSC.

XII. Non-Assignment

This Agreement and any of the rights and privileges contained within this Agreement may not be assigned by any party without the express unanimous consent of the SSC.

XIII. Independent Parties & Indemnification

The Collaborating Institutions are independent, and no Collaborating Institution referred to in this Agreement is authorized to act as the agent for any other Collaborating Institution. Each Collaborating Institution shall be responsible for its own negligent acts, omissions, and willful misconduct, and the negligent acts and omissions of its employees in connection with, resulting from and/or arising out of the SAINT project. No Collaborating Institution bears any responsibility for the negligent acts, omissions or willful misconduct of another Collaborating Institution or its employees or contractors.

Each party agrees to indemnify, defend, and hold harmless the other parties, and their trustees, directors, employees, agents, and students from any claim in connection with, resulting from, and/or arising out of the party's own negligent acts, omissions or willful misconduct as part of SAINT and the party's employees' negligent acts and omissions, except to the extent that such claims, would not have occurred but for an act or omission of another party to this Agreement. Each party shall promptly notify the other parties of any such claim and shall cooperate with the other parties and their insurance carriers in the defense of the claim.

The liability of any party to another for any breach of this Agreement, for any negligence or arising in any other way out of the subject matter of this Agreement shall not extend to loss of profits, loss of revenue, loss of business, loss of data, loss of contracts or opportunity of the parties, whether direct or indirect; even if, in any such case, the party bringing the claims has advised the other of the possibility of those losses or if they were within the other party's contemplation. Nothing in the preceding sentence shall operate to exclude or restrict any party's liability for personal injury and/or property damage in connection with, resulting from, or arising out of its own negligent acts, omissions, or willful misconduct, or the negligent acts or omissions of its employees.

XIV. Notices

All notices required under this Agreement shall be sent as follows:

California Institute of Technology

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University of Chicago

Bruce Winstein
Samuel K. Allison Distinguished Service Professor, Physics, Enrico Fermi
Institute, and the College
University of Chicago
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Phone: (773) 702-7594
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Columbia University

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University of Miami

Joshua O. Gundersen
Assistant Professor, Department of Physics
University of Miami
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Coral Gables, Florida 33146
(305) 284-2323 Ext. 6

XV. Entire Agreement

This Agreement constitutes the entire agreement by the Collaborating Institutions hereto pertaining to subject content thereof and no statements or representations made by any party have been relied upon by the others in entering into this Agreement.

XVI. Validity

In the event that any provision of this Agreement shall be held to be invalid, the same shall not affect in any respect whatsoever the validity of the remainder of this Agreement.

XVII. Amendment to Agreement

This Agreement may be modified, amended, or waived only by written consent of the parties.

XVIII. Drafter

None of the parties, nor their respective counsel, shall be deemed the drafter of this Agreement for purposes of construing the provisions hereof. The language in all parts of this Agreement shall in all cases be construed according to its fair meaning, and not strictly for or against either party.

XIX. Headings

The captions and headings of the sections and paragraphs herein in no way define, limit, extend or interpret the scope of this Agreement or of any particular section or paragraph.

XX. Additional Documents

The parties agree to execute and acknowledge, if required, any and all documents and writings which may be necessary or expedient to the parties' intentions.

XXI. Time is of the Essence

The parties agree that time is of the essence in the execution and performance of this Agreement.

XXII. Counterparts

This Agreement may be signed in counterparts, and such counterparts shall be treated as though signed as one document. Facsimile signatures on this Agreement shall be treated as original signatures.

IN WITNESS WHEREOF, the duly authorized representatives of the parties have executed this Agreement as of the Effective Date:

CALIFORNIA INSTITUTE OF TECHNOLOGY

By: _____ Date: _____
Paul C. Jennings
Provost

UNIVERSITY OF CHICAGO

By: _____ Date: _____
Mary Ellen Sheridan
Associate Vice President for Research

COLUMBIA UNIVERSITY

By: _____ Date: _____
Beth H. Israel
Executive Director, Office of Projects and Grants

MAX PLANCK INSTITUTE FOR RADIO ASTRONOMY

By: _____ Date: _____
J. Anton Zensus
Executive Director

OXFORD UNIVERSITY

By: _____ Date: _____
Catherine Quinn
Director of Research Services

PRINCETON UNIVERSITY

By: _____ Date: _____
Michelle D. Christy
Director, Office of Research
and Project Administration

STANFORD UNIVERSITY

By: _____

Date: _____

UNIVERSITY OF MANCHESTER

By: _____

Date: _____

Andrew Lyne
Director, Jodrell Bank Observatory

UNIVERSITY OF MIAMI

By: _____

Date: _____

Alan J. Fish
Vice President for Business Services