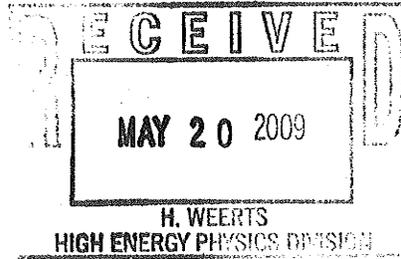


Prof. H. Weerts
c/o Mrs. Jennifer Seivwright
ANL
High Energy Physics Division of
Argonne National Laboratory
9700 S. Cass Avenue
60439 Argonne
USA



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Date May 14, 2009

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Locations of DESY
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Dr. R. Brinkmann
Dr. J. Mnich
C. Scherf
Prof. Dr. H. Dosch
(Chairman)
Prof. Dr. E. Weckert
Dr. U. Gensch
(Representative of Directors
in Zeuthen)

Agreement of the Collaboration between ANL, MPIK and DESY from April 23, 2009

Dear Professor H. Weerts,

all the partners have signed the Agreement. Now I send back one of specimen.

Best regards,

Katrin Varschen
Secretary

Deutsches Elektronen-Synchrotron
Ein Forschungszentrum der Helmholtz-Gemeinschaft
Platanenallee 6 | 15738 Zeuthen | Tel. 033762 7-70



Agreement of Cooperation

between

The **High Energy Physics Division of Argonne National Laboratory**, 9700 S. Cass Avenue, 60439 Argonne, USA, hereafter referred to as **ANL**, represented by its Director

and

The **Particle Physics and High-energy Astrophysics Division of the Max Planck Institute for Nuclear Physics**, Saupfercheckweg 1, 69117 Heidelberg, Germany, hereafter referred to as **MPIK**, represented by its Director

and

Deutsches Elektronen-Synchrotron, Notkestr 85, 22607 Hamburg, Germany, hereafter referred to as **DESY**, represented by its boards of Directors,

hereafter individually or collectively referred to as the "Party" or "Parties", respectively.

It has been agreed to cooperate in a project to

Design and construct mechanical structures with drive systems for ground-based Imaging Atmospheric Cherenkov Telescopes designed to measure high-energy gamma-rays covering energies above a few tens of GeV with large sensitivities.

1. Project Description

The purpose of the cooperation laid out in this Agreement is to design prototypes for Imaging Atmospheric Cherenkov Telescopes (IACTs), in particular the optical support structures and both the mechanical and electrical parts of the drive system both of small- and mid-size telescopes (six and twelve meter-class). The telescopes shall be usable for the Cherenkov Telescope Array CTA within its current baseline design but might also be of alternative design to increase the field of view and angular resolution. For a large system of IACTs reliability and efficient production and commissioning of the telescope structures are even more important than for previous IACTs. The design of the telescopes must be optimized for their construction cost, making best use of the economics of large-scale production. Key goals in the next years are detailed designs and industrial cost estimates for telescopes. We will make use of the large base of know-how available in construction and operation of H.E.S.S. and VERITAS telescopes and possibly in related areas of the engineering of large antenna.

2. Time Schedule

A tentative time schedule is:

- End of 2009 design a small- and mid-size conventional prototype telescope
- 2009 design a mid-size secondary-mirror telescope
- 2009 build a drive system test-stand
- 2010 build, with industrial partners, small- and mid-size conventional prototypes with drive systems

3. Expertise And Manpower

MPIK designed and built together with industrial partners the H.E.S.S.1 telescopes in the years 2000 to 2003. The highest priority of MPIK in 2009 is to finish the construction of the H.E.S.S. 2 telescope that was designed under the supervision of MPIK – and to start operating it in 2010. One

FTE mechanical engineer is designated to the design of small and mid-size telescopes for CTA. The coordinating physicist works closely with the engineer.

DESY started recently to build up expertise in telescope building. 1.2 FTE mechanical engineers are working on a design for a mid-size telescope for CTA with help and in close collaboration with ANL. DESY plans to build, with industrial partners, a mid-size telescope prototype. Furthermore, DESY takes responsibility for design and building the electrical drive and control system of the prototype telescopes as one of the key systems for a safe and robotic operation of the telescopes. More than one FTE electrical engineer is assigned to this task. The coordinating physicist works closely with the engineers.

The Mechanical Support Group (MSG) of ANL has participated in the construction of ZEUS, CDF, the ATLAS tile-calorimeter, STAR, and the detectors at MINOS. The MSG has a wide range of technical skills such as the ability to perform detailed finite element analysis, solid modeling, detailed design drafting and mechanical fabrication, testing of materials and structures. 0.5 FTE of the MSG worked in the last two years on telescope designs with a secondary mirror for mid-size telescopes. Recently the group started to work with DESY on the design of a 'conventional' mid-size telescope. ANL can contribute up-to 2.5 FTE experts from MSG to offer technical assistance; this personnel will spur the design process of prototype telescopes with the goal of building such prototypes of different sizes together with MPIK and DESY and industrial partners. The coordinator is the manager of the MSG.

4. Consultancy And Technical Assistance

Subject to the availability of appropriate ANL experts, ANL shall use its know how, equipment and work force to provide, on a 'best effort' basis, consultancy and technical assistance of the design of the other Parties needs. For the service agreed, ANL shall give an estimate of the costs, based on written requests by the other Parties and obtain the other Parties written clearance before commencing work.

5. Payment Conditions

DESY and MPIK shall pay the following fees for technical assistance of ANL experts: 400 (four hundred) EUR per day. The total sum of these fees shall not exceed 30,000 (thirty-thousand) EUR per year on a pro-rata basis. On basis of the time spent on technical assistance and the costs incurred ANL will issue one or more invoices which DESY and MPIK shall pay into the accounted state on the invoice within 30 days of the issuance of said invoice. In addition, the costs of subsistence of ANL experts for trips to Europe may be reimbursed by MPIK and DESY on the basis of the rates of MPIK and DESY. The Parties themselves will cover travel costs.

6. Exchange Of Knowledge

Each Party shall make available to the other Parties, free of charge, in writing or in any other appropriate form, its existing intellectual property, whether protected or not, for the exclusive purpose of its use, by the other Parties only, under this Agreement.

The providing Parties provide no warranty, including but not limited to those of fitness for purpose and non-infringement of intellectual property rights held by third parties, in respect of intellectual property made available by it or the other Parties under this Agreement, and the receiving Party shall hold the providing Party free and harmless from any liability arising from its use (including, if permitted, any sub-licensing) of such intellectual property.

7. Confidentiality

The Parties agree that the open exchange of information shall honour the following principles:

The Parties shall treat any information, which is appropriately designated as such, unless otherwise agreed in writing, for the duration of this agreement and for a period of five (5) years thereafter, strictly confidential. The Parties shall take all appropriate steps to safeguard the confidential information. Accordingly, the receiving Party shall not use any such information for any purpose other than according to the terms of the Agreement and the receiving Party shall not disclose any such confidential information to any third party, and such information shall neither be reproduced nor duplicated in any form.

The aforementioned shall not apply to information for which the receiving Party can prove that it had a public nature prior to its communication by the disclosing Party or fell within the public domain after such communication but though not fault of its own; was already in its possession at the time of signature of this Agreement; is received from a third party without any obligation to keep it confidential; is developed by the receiving Party independently outside the scope of this Agreement; is required to be disclosed according to mandatory national legislation or by a Court decision.

8. Intellectual Property Rights

Title in intellectual property developed by a Party in the framework of this Agreement shall be vested in that Party, who shall grant a free, non-exclusive license to such intellectual property to the other Party, for the exclusive purpose of its use, by the other Party only, under this Agreement, as well as for the latter's internal research purposes.

Where intellectual property is jointly vested in the Parties, they shall agree on ways of protecting, and of making available to third parties, such intellectual property, provided that in any event, they shall grant to each other a free, non-exclusive license to such intellectual property for the exclusive purpose of its use, by the receiving Party only, under this Agreement, as well as for the latter's internal research purposes.

9. Disputes

The Parties shall do their utmost to settle amicably any differences and difficulties, which may arise during the cooperation.

10. Changes

Changes to this Agreement and all amendments have to be agreed upon in writing and shall be signed by all Parties.

11. Duration And Termination

The cooperation is established when this Agreement has been signed by all Parties. This Agreement will initially last till December 31, 2010, but can be extended if the Parties wish so.

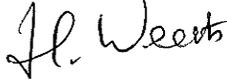
12. Coordination

All Parties will agree on the overall project coordination. They prepare regular coordination meetings at least one in six month to control and adjust the work progress and time schedule of the project. Protocols of these meetings will be made available within ten working days after the meetings. Nominated coordinators of the cooperation within this Agreement are V. Guarino for ANL, M. Panter for MPIK and S. Schlenstedt for DESY.

Argonne, _____, 2009

On behalf of ANL

Prof. H. Weerts
Director of HEP Division



V. Guarino
Coordinator



Heidelberg, 23.04., 2009

On behalf of MPIK

Prof. W. Hofmann
Director



Dr. Günter Sparr
Representative of the Board
of Directors



Dr. M. Panter
Coordinator



Hamburg, _____, 2009

On behalf of DESY

Prof. H. Dösch
Chair of the Directorate

C. Scherf
Director of Administration

Dr. U. Gensch
Representative of the
Directorate in Zeuthen

Dr. S. Schlenstedt
Coordinator

