**IceCube Institutional Memorandum Of Understanding (MOU)**

**Scope of Work**

**RWTH Aachen**

**Christopher Wiebusch**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **1** (1 0 11)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS L3** | **Tasks** | **WBS 2.1** | **WBS 2.2** | **WBS 2.3** | **WBS 2.4** | **WBS 2.5** | **Grand Total** |
| Program Management | Detector Maintenance & Operations | Computing & Data Management | Triggering & Filtering | Data Quality, Reconstruction & Simulation Tools |
| KE | WIEBUSCH, CHRISTOPHER | Administration | ExecCom member | 0.20 |  |  |  |  | 0.20 |
|  | **WIEBUSCH, CHRISTOPHER Total** | |  | **0.20** |  |  |  |  | **0.20** |
| GR | BLUMENTHAL, JAN | Detector Monitoring | Monitoring contact |  | 0.05 |  |  |  | 0.05 |
|  | PAUL, LARRISA | Detector Monitoring | RASTA data processing |  | 0.10 |  |  |  | 0.10 |
|  |  | Simulation Production | Simulation Production on cluster/GRID |  |  | 0.30 |  |  | 0.30 |
|  |  | Engineering and R&D Support | SPATS SD Maintenance & Analysis | 0.20 |  |  |  |  | 0.20 |
|  | WALLRAFF, MARIUS | Reconstruction/ Analysis tools | Finite track reconstruction |  |  |  |  | 0.10 | 0.10 |
|  | Reconstruction/ Analysis tools | nuCraft |  |  |  |  | 0.20 | 0.20 |
|  | VEHRING, MARKUS | Reconstruction/ Analysis tools | Genie MC development & data production |  |  | 0.20 |  |  | 0.20 |
|  |  | Simulation Production | Simulation Production on GPU |  |  | 0.10 |  |  | 0.10 |
|  | HEINEN, DIRK | Engineering and R&D Support | Acoustic R&D Support | 0.10 |  |  |  |  | 0.10 |
|  | Leif Rädel | Simulation  Production | Geant Simulations |  |  | 0.10 |  |  | 0.10 |
|  | Simulation  Programs | Implementation of new light yield factors in IceCube software |  |  |  |  | 0.10 | 0.10 |
|  | Physics Filters | L3 IC86-2 diffuse data stream |  |  |  | 0.10 |  | 0.10 |
|  | SCHOENEN, SEBASTIAN | Simulation  Programs | Data systematics & Simulations for magnetic monopoles (with Christian Haack) |  |  |  |  | 0.10 | 0.10 |
|  | Physics Filters | Kalman Filter for L2 slow particle filter |  |  |  | 0.10 |  | 0.10 |
|  | GR | Detector Monitoring |  |  | 0.12 |  |  |  | 0.12 |
|  | **GR Total** |  |  | **0.30** | **0.27** | **0.70** | **0.20** | **0.50** | **1.97** |
|  | **RWTH Total:** |  |  | **0.50** | **0.27** | **0.70** | **0.20** | **0.50** | **2.17** |

**Diplom/Master Students M&O Contribution:**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS L3** | **Tasks** | **WBS 2.1** | **WBS 2.2** | **WBS 2.3** | **WBS 2.4** | **WBS 2.5** | **Grand Total** |
| Program Management | Detector Maintenance & Operations | Computing & Data Management | Triggering & Filtering | Data Quality, Reconstruction & Simulation Tools |
|  | Christian Haack | Simulation  Programs | Addition of knee weights to nuflux module |  |  |  |  | 0.10 | 0.10 |
|  | Simulation  Programs | Data driven Simulation tools for magnetic monopoles |  |  |  |  | 0.10 | 0.10 |
|  | Reconstruction/ Analysis tools | Photspilines for finite reco |  |  |  |  | 0.10 | 0.10 |
|  | KRINGS, Kai/COENDERS Stefan | Simulation Production | Analysis tools for PINGU, Simulation Production for PINGU |  |  | 0.10 |  | 0.10 | 0.20 |
|  | Engineering and R&D Support | Pingu design study | 0.10 |  |  |  |  | 0.10 |
|  | Hallen, Patrik | Reconstruction/ Analysis tools | Milipede & tau reconstruction |  |  |  |  | 0.20 | 0.20 |
|  | **Diplom/Master Students Total** |  |  | **0.10** |  | **0.10** |  | **0.60** | **0.80** |

**Faculty:**

Christopher Wiebusch

**Scientists and Post Docs:**

N.N. - Reconstruction & Analyze

**Phd Students:**

Sebastian Euler - DOM production, Development of processing scripts   
 for L2/L1 processing, finite track reco.

Thesis topic: DeepCore atm neutrino oscillations

Anne Schukraft - Photonics tables,   
 Thesis topic: Diffuse analysis

Martin Bissok - Gal Cen Filter, development of processing scripts for L2/L1 processing

Thesis topic: Dark matter from gal. center

Jan Blumenthal – Muon reconstruction, photonics table production

Thesis topic: global dark matter fits

Marius Wallraff - Software development for graphic processors, development of processing scripts for L2/L1 processing, feature extraction, nuCraft

Thesis topic: Atmospheric, sterile neutrinos

Larissa Paul - Simulation Production on cluster/GRID, SPATS monitoring

Thesis topic: RASTA

Markus Vehring Finite Reco, Neutrino simulation with Genie, Grid maintenance, RASTA Antenna simulations

Thesis topic: Atm. Neutrino oscillations deepcore

Dirk Heinen Acoustic R&D

Thesis topic: Acoustic navigation system for IceMole

Leif Rädel Geant simulations, Data processing

Thesis topic: multi year diffuse analysis

Sebastian Schönen Magnetic monopole analysis

Thesis topic: multi year diffuse analysis

Simon Zierke Acoustic navigation system for IceDrill

**Diplom/Master Students**

Rene Reimann - Multipole analysis IC59, mini sources

Patrik Hallen - Tau neutrinos.

Stefan Coenders - Pingu oscillation sensititvity matter effects

Kai Krings - Pingu oscillation sensitivity hierachy

Kai Jagielski - Diffuse analysis cascades

Martin Leuermann - Multipole, Halo analysis

Christian Haack - Background magnetic monopoles, Finite Reco, NuFlux-Knee models

Pavel Greskov - Dark matter exclusions on effective theories

Anna Kriesten - IC-79 oscillation analysis