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

**Scope of Work**

**RWTH Aachen**

**Christopher Wiebusch**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads Master): **2** (1 1 9)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |
|  | Administration | PubCom member | 0.10 |  |  |  |  | 0.10 |
|  | **WIEBUSCH, CHRISTOPHER Total** | |  | **0.30** |  |  |  |  | **0.30** |
| PO | AUFFENBERG, JAN | Engineering and R&D Support | IceVeto R&D and coordination | 0.20 |  |  |  |  | 0.20 |
| Engineering and R&D Support | IceAct R&D | 0.20 |  |  |  |  | 0.20 |
| Engineering and R&D Support | IceVeto Performance & Simulation | 0.10 |  |  |  |  | 0.10 |
|  | **AUFFENBERG, JAN Total** | | | **0.50** |  |  |  |  | **0.50** |
| GK | Christian Haack | Simulation Programs | Maintenance / Addition of seasons weights to nuflux module |  |  |  |  | 0.10 | 0.10 |
|  | Simulation Production | Next Generation Simulation |  |  | 0.30 |  |  | 0.30 |
|  | Simulation Production | Next Generation Simulation Tools |  |  | 0.10 |  |  | 0.10 |
|  |  | Simulation Production | Simulation Production on cluster/GRID |  |  | 0.10 |  |  | 0.10 |
|  | WALLRAFF, MARIUS | Reconstruction/ Analysis tools | nuCraft |  |  |  |  | 0.20 | 0.20 |
|  | VEHRING, MARKUS | Reconstruction/ Analysis tools | CLSIM Hyrid maintenance |  |  |  |  | 0.10 | 0.10 |
|  |  | Simulation Production | Low energy Simulation Production |  |  | 0.10 |  |  | 0.20 |
|  | Leif Rädel | Engineering and R&D Support | IceAct commissioning | 0.10 |  |  |  |  | 0.10 |
|  |  | Physics Filters | L3 IC86-x muon data stream, Skripts & Monitoring |  |  |  | 0.30 |  | 0.30 |
|  | SCHOENEN, SEBASTIAN | Simulation Programs | KDE Tools KDE and multi-llh |  |  |  |  | 0.10 | 0.10 |
|  | Engineering and R&D Support | IceAct comissioning | 0.10 |  |  |  |  | 0.10 |
|  | Simulation Production | Gentwo benchmark diffuse analysis |  |  | 0.10 |  |  | 0.10 |
|  | REIMAN, RENE | Simulation Production | AC-RZ GPU/CPU cluster maint. iceprod and mass production |  |  | 0.30 |  |  | 0.30 |
|  | RONGEN, MARTIN | Engineering and R&D Support | Acoustic R&D Support | 0.10 |  |  |  |  | 0.10 |
|  | Calibration | Gen2 DOM Calibration and R&D |  | 0.20 |  |  |  | 0.20 |
|  | Detector Monitoring | Monitoring contact |  | 0.05 |  |  |  | 0.05 |
|  | LEUERMANN, MARTIN | Reconstruction/ Analysis tools | Finite track reconstruction, PegLeg Reconstruction |  |  |  |  | 0.30 | 0.30 |
|  | GR | Detector Monitoring |  |  | 0.12 |  |  |  | 0.12 |
|  | **GR Total** |  |  | **0.30** | **0.37** | **1.00** | **0.30** | **0.80** | **2.77** |
|  | **RWTH Total:** |  |  | **1.10** | **0.37** | **1.00** | **0.30** | **0.80** | **3.57** |

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

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |
| Master | Bengt Hansmann | Simulation Production | IceAct Siimulation |  |  | 0.05 |  |  |  |
| Stefan Wickmann | Engineering and R&D Support | Design acoustic transducers for gen2 doms | 0.20 |  |  |  |  |  |
| Jacob | Simulation Production | Gen2 Geometry optimization |  |  | 0.05 |  |  |  |
| Richard | Simulation Production | Gen2 Geometry optimization |  |  | 0.05 |  |  |  |
| Julian | Engineering and R&D Support | IceVeto R&D | 0.10 |  |  |  |  |  |
| Merlin | Engineering and R&D Support | IceAct R&D | 0.05 |  |  |  |  |  |
|  | **Diploma/Master Students Total** | |  | **0.35** |  | **0.15** |  |  | **0.50** |

**Faculty:**

Christopher Wiebusch -

**Scientists and Post Docs:**

Jan Auffenberg - High energy surface extension, (IceVeto).

**Ph.D. Students:**

Marius Wallraff - Thesis topic: Sterile neutrinos

Markus Vehring Thesis topic: Atm. Neutrino oscillations

Dirk Heinen Thesis topic: Acoustic in ice navigation system (EnEx)

Leif Rädel Thesis topic: Multi year diffuse muon neutrino analysis

Sebastian Schönen Mag.Monopole Thesis topic: Multi year muon neutrino diffuse analysis

Rene Reimann Multipole analysis, Thesis topic : Cosmic neutrino sources

Martin Leuermann Ang.Korrelation, Thesis topic: Multi Year Numu disappearance analysis

Martin Rongen IceCube Gen2 R&D R&D, Thesis Topic: Gen 2 DOMs

Christian Haack IceCube-gen2. Thesis Topic : Cosmic neutrino sources

**Diploma/Master Students**

Stefan Wickmann Acoustic transducers for Gen 2 doms

Lisa Schumacher Angular correlation analysis

Michael Schimp Angular Correlation analysis

Martin Glagla Galactic Halo analysis

Martin Stahlberg Vertical starting muon events and IceTop

Julian Kemp IceTop and IceBags

Richard Koniets Gen-2 Simulations

Jacob Leuner Gen-2 Simulations

David Gier - Time dependent analysis of the DeepCore Data (GRB)

Bengt Hansmann IceAct Simulations

Tim Hansmann IceAct Hardware