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

**Scope of Work**

**DESY-Zeuthen**

**Markus Ackermann**

**Ph.D Scientists** (Faculty (incl. retired) Scientist/Post Doc Grads): **7** (4 3 8)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | ACKERMANN, MARKUS | Administration | ExecCom member | 0.20 |  |  |  |  | 0.20 |
|  | **ACKERMANN, MARKUS Total** | **0.20** |  |  |  |  | **0.20** |
|  | NAHNHAUER, ROLF | Engineering and R&D Support | Acoustic R&D SupportPINGU R&D | 0.10 |  |  |  |  | 0.10 |
|   | **NAHNHAUER, ROLF Total** |  | **0.10** |  |  |  |  | **0.10** |
| SC | GORA, DARIUSZ | Simulation Production | Simulation Production Cluster |  |  | 0.20 |  |  | 0.20 |
|  |  | Physics Filters | Online Filter Alerts / NToO program |  |  |  | 0.15 |  | 0.15 |
|  | **GORA, DARIUSZ Total** |  |  | **0.20** | **0.15** |  | **0.35** |
|  | DESY SC | Detector Monitoring | Detector Monitoring |  | 0.05 |  |  |  | 0.05 |
|   | **DESY SC** **Total** |  |  | **0.05** |  |  |  | **0.05** |
| PO  | KARG, TIMO | Engineering and R&D Support | Acoustic PINGU | 0.10 |   |   |   |   | 0.10 |
|  |  | TFT Coordination | TFT Board Member |  |   |   |  0.10 |   | 0.10 |
|  |  | Physics filters | CR WG co-chair |  |  |  | 0.25 |  | 0.25 |
|   | **KARG, TIMO** **Total** |  | **0.10** |  |  | **0.35** |  | **0.45** |
|  | BERGHAUS, PATRICK  | TFT Coordination | TFT Board member |  |   |   | 0.10 |  | 0.10 |
|   | **BERGHAUS, PATRICK** **Total** |  |  |  |  | **0.10** |  | **0.10** |
| GR  | BRETZ, HANS-PETER | Engineering and R&D support | PINGU calibration studies | 0.10 |  |  |  |  | 0.10 |
| MOHRMANN, LARS | Reconstruction tools | Likelihood fit package |  |  |  |  | 0.10 | 0.10 |
| STOESSL, ACHIM | Detector Calibration | Flasher Analysis |  | 0.20 |  |  |  | 0.20 |
|  | Data Storage & Transfer | Data Storage & Transfer |  |  | 0.10 |  |  | 0.10 |
|   | DESY GR | Detector Monitoring | Detector Monitoring |  | 0.12 |  |  |  | 0.12 |
|   |  | Simulation Production | Simulation Production Cluster |  |  | 0.15 |  |  | 0.15 |
|   | **DESY GR Total** |  | **0.10** | **0.32** | **0.25** |  | **0.10** | **0.77** |
| TE | DESY IT | Computing Resources | European Data Center -Distributed Computing and Labor |  |  | 2.00 |  |  | 2.00 |
|   | **DESY IT Total** |  |  |  | **2.00** |  |  | **2.00** |
| **DESY Total** |  |  | **0.50** | **0.37** | **2.45** | **0.60** | **0.10** | **4.02** |

**Retired Faculty:**

 Christian Spiering (L,+) – Past spokesperson

**Faculty:**

Markus Ackermann – Exec-com member, Diffuse Neutrino Flux

Elisa Bernardini – Point Sources, ToO

Rolf Nahnhauer – DeepCore, IceTop, PINGU R&D

**Scientists and Post Docs:**

Dariusz Gora – Simulation production, Online Filter/NToO program

 Analysis topics: Time dependent searches for point sources

Timo Karg – TFT Board member, CR group co-convenor, R&D PINGU, IceTop

 Analysis topics: Development of in-ice optical sensors

Patrick Berghaus – TFT board member

 Analysis topics: Spectrum of CR muons

**Ph.D. Students:**

Emanuel Jacobi – Search for magnetic monopoles

 Thesis/analysis topics: Search for slow monopoles with IC-86

Angel Humberto Cruz Silva – point sources

 Thesis/analysis topics: Search for multiple flares from candidate sources

Juan Pablo Yanez – Deep Core/Neutrino oscillation

 Thesis/analysis topics: Constraints on oscillation parameters

Arne Schoenwald – Search for diffuse neutrinos

 Thesis/analysis topics: Search for diffuse astrophys. neutrinos with IC-59

Achim Stoessl – Search for diffuse neutrinos, flasher analysis, datat transfer

 Thesis/analysis topics: Search for uncontained shower-type events.

Torsten Gluesenkamp – Point sources, Zeuthen group administration

 Thesis/analysis topics: Search for neutrinos from Blazar populations.

Lars Mohrmann – Search for diffuse neutrinos, Likelihood analysis package

 Thesis/analysis topics: Global fit of IceCube diffuse searches.

Hans-Peter Bretz – PINGU calibration studies / atm. Muon analysis

 Thesis/analysis topics: Charm production of muons in the atmosphere

**Diploma/Master students:**

Alexey Shmelkin – Calibration performance of PINGU

Andrii Terliyuk – Energy reconstruction of low-energy events with DeepCore