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

**Scope of Work**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | Van Eijndhoven Nick | | Reconstruction Tools | development of reconstruction tools (IcePack framework), |  |  |  |  | 0.25 | 0.25 |
| Data Quality | data quality verification |  |  |  |  | 0.25 | 0.25 |
| **Van Eijndhoven Nick total** | | |  |  |  |  |  | **0.50** | **0.50** |
| De Clercq Catherine | | administration | Institutional Lead | 0.20 |  |  |  |  | 0.20 |
| **De Clercq Catherine total** | | |  | **0.20** |  |  |  |  | **0.20** |
| PO | De Vries, Krijn | | Reconstruction Tools | muon track reconstruction in IceCube and DeepCore |  |  |  |  | 0.25 | 0.25 |
|  | Data Quality | GRB/AGN analysis |  |  |  |  | 0.25 | 0.25 |
|  | **De Vries, Krijn Total** | | |  |  |  |  |  | **0.50** | **0.50** |
|  | Lünemann, Jan | | Reconstruction Tools | Low energy muon reconstruction |  |  |  |  | 0.25 | 0.25 |
|  | **Lünemann, Jan Total** | | |  |  |  |  |  | **0.25** | **0.25** |
|  | Toscano, Simona | | Reconstruction Tools | optimization of the geometry and the track reconstruction |  |  |  |  | 0.25 | 0.25 |
|  | **Toscano, Simona Total** | | |  |  |  |  |  | **0.25** | **0.25** |
| VUB PO | | Detector Monitoring | Detector Monitoring |  | 0.06 |  |  |  | 0.06 |
|  | **VUB PO Total** | | |  |  | **0.06** |  |  |  | **0.06** |
| GR | Casier Martin | | Reconstruction Tools | muon track reconstruction in IceCube and DeepCore |  |  |  |  | 0.50 | 0.50 |
|  | **Casier Martin Total** | | |  |  |  |  |  | **0.50** | **0.50** |
|  | De Wasseige, Gwenhael | Physics Filters | | Optimization of hitspooling for SN and solar flares |  |  |  | 0.25 |  | 0.25 |
|  | **De Wasseige, Gwenhael, Total** | | |  |  |  |  | **0.25** |  | **0.25** |
|  | Brayeur Lionel | | Reconstruction Tools | muon track reconstruction in IceCube and DeepCore |  |  |  |  | 0.50 | 0.50 |
|  | **Brayeur Lionel Total** | | |  |  |  |  |  | **0.50** | **0.50** |
|  | Kunnen Jan | | Physics Filters | Filter for low energy muons |  |  |  | 0.25 |  | 0.25 |
|  | **Kunnen Jan Total** | | |  |  |  |  | **0.25** |  | **0.25** |  |
|  | Maggi, Giuliano | | Reconstruction Tools | muon track reconstruction in IceCube and DeepCore |  |  |  |  | 0.25 | 0.25 |
|  | Data Quality | AGN analysis |  |  |  |  | 0.25 | 0.25 |
|  | Core Software | Software Strike Team |  |  | 0.25 |  |  | 0.25 |
|  | **Maggi, Giuliano Total** | | |  |  |  | **0.25** |  | **0.50** | **0.75** |
|  | VUB GR | | Detector Monitoring | Detector Monitoring |  | 0.06 |  |  |  | 0.06 |
|  | **VUB GR Total** | | |  |  | **0.06** |  |  |  | **0.06** |
| **VUB Total** | | | |  | **0.20** | **0.12** | **0.25** | **0.50** | **3.00** | **4.07** |

**Vrije Universiteit Brussel**

**Catherine de Clercq**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **5** (2 3 5)

**Faculty:**

Catherine de Clercq Institutional Lead

Nick Van Eijndhoven Development of reconstruction tools (IcePack framework) - data quality verification

**Scientists/post-docs:**

De Vries, Krijn Muon track reconstruction in IceCube and DeepCore

R&D on radio detection

Analysis topics: GRB/AGN analysis

Jan Lünemann Low energy muon track reconstruction

Analysis topics: WIMP analysis

Simona Toscano Optimization of the geometry and the track reconstruction.

Analysis topics: Development of a hybrid reconstruction for EHE (GZK) events using the In-Ice part of IceCube and the radio detectors

**Ph.D. Students:**

Jan Kunnen Filter for Southern hemisphere signals

Analysis topics: WIMP analysis

Thesis topic: Search for neutrinos from WIMP annihilations in the center of the Earth

Lionel Brayeur Muon track reconstruction in IceCube and DeepCore

Analysis topics: GRB analysis

Thesis topic: Bayesian approach for a temporal and spatial distribution analysis in search for high-energy neutrinos from long Gamma Ray Bursts

Martin Casier Muon track reconstruction in IceCube and DeepCore

Analysis topics: GRB analysis

Thesis topic: Bayesian approach for a time series analysis in search for high-energy neutrinos from short Gamma Ray Bursts

Maggi Giuliano Muon track reconstruction in IceCube and DeepCore, Software Strike Team

                 Analysis topics: AGN analysis

Thesis topic: Search for high-energy neutirnos from dust-obscured Active Galactic Nuclei

Gwenhael De Wasseige Optimization of hitspooling for SN and solar flares

Analysis topics: Solar flares

Thesis topic: Search for neutrinos from solar flares

**Diploma/Master Students:**