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

**Scope of Work**

**Marquette University**

**Karen Andeen**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **2** (1 1 0)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS Level 3** | **Tasks** | **WBS 2.1** | **WBS 2.2** | **WBS 2.3** | **WBS 2.4** | **WBS 2.5** | **WBS 2.6** | **Grand Total** |
| Program Coordination | Detector Maintenance & Operations | Computing & Data Management | Data Processing & Simulation | Software | Calibration |
| KE | Andeen, Karen | Administration | Program administration | 0.20 |  |  |  |  |  | 0.10 |
|  | Surface Detectors | Surface detector R&D |  | 0.05 |  |  |  |  | 0.05 |
|  | Central Computing Resources | Building cluster for future simulation production |  |  | 0.05 |  |  |  | 0.05 |
|  |  | Reconstruction | 3-year Cosmic Ray Composition Analysis |  |  |  |  | 0.10 |  | 0.20 |
|  | **Andeen, Karen Total** | |  | **0.20** | **0.05** | **0.05** |  | **0.10** |  | **0.40** |
| PO | PLUM, MATTHIAS | Surface Detectors | Surface detector R&D |  | 0.45 |  |  |  |  | 0.45 |
|  |  | Central Computing Resources | Initializing cluster for future simulation production |  |  | 0.10 |  |  |  | 0.10 |
|  |  | Reconstruction | Cosmic Ray Composition Analysis and simulation |  |  |  |  | 0.45 |  | 0.45 |
|  | **PLUM, MATTHIAS Total** | |  |  | **0.45** | **0.10** |  | **0.45** |  | **1.00** |
| **Marquette University Total** | | |  | **0.20** | **0.50** | **0.15** |  | **0.55** |  | **1.40** |

**Faculty:**

Karen Andeen – Administration of program at newer IceCube institution, CR data analysis, Set up local Computing Cluster for contribute to CR simulations, R&D for CR surface detector.

**Scientists and Post Docs:**

(at this moment the final paperwork is going through to hire) Matthias Plum – R&D for CR surface detector, set up local cluster to contribute to CR simulations, Cosmic ray composition reconstructions, data analysis, and simulation

**Grad Students:** No graduate students at Marquette

**Marquette Computing Resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2016** | | **2017** | |
|  | **CPU Cores** | **GPU Cards** | **CPU Cores** | **GPU Cards** |
| **IceCube** | 60 | 16 | 60 | 16 |
| **PINGU** |  |  |  |  |
| **Gen2** |  |  |  |  |