**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**  |  |  |  |  |