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

**Scope of Work**

**Drexel University**

**Naoko Kurahashi Neilson**

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

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS Level 3** | **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 | Naoko Kurahashi Neilson | 2.4.2 Physics Filter | Point Source WG Lead |  |   |   | 0.25 |   | 0.25 |
|  | 2.1.1 Administration | ICB member | 0.05 |  |   |   |   | 0.05 |
|  | 2.4.2 Physics Filter | Splitting – Q/P frame and coincidence  |  |   |   | 0.05  |  | 0.05 |
|  | 2.5.2 Reconstruction and Analysis Tools | Optimization of veto techniques for PS |  |  |  |  | 0.10 | 0.10 |
|   | **Naoko Kurahashi Neilson Total** |  | **0.05** |  |  | **0.30** | **0.10** | **0.45** |
| PO | Mike Richman | 2.3.1 Core Software | Software strike team member |  |  | 0.30 |  |  | 0.30 |
|  | 2.2.7 Monitoring | Detector monitoring shifts |  | 0.03 |  |  |  | 0.03 |
|  | **Mike Richman Total** |  |  | **0.03** | **0.30** |  |  | **0.33** |
| GR | Elizabeth Wills | 2.2.7 Monitoring | Detector monitoring shifts |  | 0.03 |  |  |  | 0.03 |
|  |  | 2.3.4 Data Production Processing | HESE Online system |  |  | 0.25 |  |  | 0.25 |
|  |  | 2.5.2 Reconstruction and Analysis Tools | Shadow of Moon study of IceCube performance |  |  |  |  | 0.20 | 0.20 |
|  | **Drexel GR total** |  |  | **0.03** | **0.25** |  | **0.20** | **0.48** |
| **Drexel University Total** |  |  |  **0.05 0.06** | **0.55** | **0.30**  | **0.30** | **1.26** |

**Faculty:**

Naoko Kurahashi Neilson

M&O

* Working group co-leader for Point Source analysis channel
* Development/maintenance of event splitting modules, particularly for the muon channel but for all events
* Development of improved veto techniques optimized for point sources

Analysis

* Point source analysis focused on the southern sky, particularly using contained cascades and starting tracks
* Online HESE system
* Diffuse source analysis such as galactic plane and other large regions

Post Docs

 Mike Richman

 M&O

* Member of IceCube software strike team – core individuals responsible for maintenance of IceCube software systems under direction of IceCube Software Coordinator.
* Development of PS veto techniques

Analysis

Graduate Students

 Elizabeth Wills

 M&O

* Migration of HESE analysis to online near-real time alerting system.
* Coordination with AMON network
* Improvements on shadow of moon study