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

**Scope of Work**

**University of Alabama**

**Dawn Williams**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **3** (2 1 1)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS L3** | **Tasks** | **Funds Source** | **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 | Williams, Dawn | Detector Calibration | Managing flasher runs and coordinating low level calibration effort | NSF M&O Core |  | 0.20 |  |  |  | 0.20 |
|  |  | TFT Coordination | TFT board member | Inst. In-Kind |  |  |  | 0.10 |  | 0.10 |
|  |  | Physics Filters | Tau WG lead | Inst. In-Kind |  |  |  | 0.25 |  | 0.25 |
|   | **Williams, Dawn Total** |  |  |  | **0.20** |  | **0.35** |  | **0.55** |
|  | Toale, Patrick | Reconstruction/Analysis Tools | Tau reconstruction tools | Inst. In-Kind |  |  |  |  | 0.05 | 0.05 |
|   | **Toale, Patrick Total** |  |  |  |  |  |  | **0.05** | **0.05** |
| PO | Palczewski, Tomasz | Detector Calibration | Domcal monthly vetting | NSF Base Grant |  | 0.05 |  |  |  | 0.05 |
|  |  | Detector Calibration | SPE recalibration  | NSF Base Grant |  | 0.10 |  |  |  | 0.10 |
|  |  | Core Software Systems | Software strike team, lead on domcal-related software | NSF Base Grant |  |  | 0.25 |  |  | 0.25 |
|  | **Palczewski , Tomasz Total**  |  |  |  | **0.15** | **0.25** |  |  | **0.40** |
| GR | Pepper, James | Detector Calibration | I3Live C&V | NSF Base Grant |  | 0.05 |  |  |  | 0.05 |
|  |  | Detector Monitoring | Monitoring shifts | NSF Base Grant |  | 0.05 |  |  |  | 0.05 |
|  |  | Simulation Programs | Dark Matter signal simulation | NSF Base Grant |  |  |  |  | 0.15 | 0.15 |
|  | **Pepper, James Total** |  |  |  | **0.10** |  |  | **0.15** | **0.25** |
| **UA Total** |  |  |  | **0.45** | **0.25** | **0.35** | **0.20** | **1.25** |

**Faculty:**

Dawn Williams – Institutional Lead, Calibration Coordinator, TFT Board Member, Cascade-Tau Working Group Co-Coordinator

Patrick Toale – hybrid reconstruction tools

**Scientists and Post Docs:**

Tomasz Palczewski – SPE recalibration, monitoring shifts, domcal monthly vetting, software strike team with lead responsibility on domcal related software

**Ph.D. Students:**

James Pepper - verification monitoring, dark matter signal simulation

 Thesis /Analysis topics: Heavy Gravitino Dark Matter Decay

NOTE: Graduate student Donglian Xu has defended her analysis and is due to leave Alabama in summer 2015, so she is not included in the MoU. Her sole focus is writing the tau neutrino analysis paper.

**UA General M&O (non-science) IceCube Responsibilities and Contributions:**

The Alabama Group’s major responsibilities and contributions towards maintenance and operations of the IceCube experiment include:

* Primary institutional responsibility for overseeing flasher operations and software.
* Major responsibility for calibration coordination, including ice model working group activities and domcal monthly vetting, and data-based calibration of baselines and charge
* Major responsibility for tau neutrino analysis, cascade-tau working group co-lead

**Analysis:** The main analysis focus at the University of Alabama is searching for tau neutrinos.

Alabama is also working on analysis of cascade events from gravitino dark matter; including both simulation and reconstruction tools for such events.