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

**Scope of Work**

**University of Alabama**

**Dawn Williams**

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

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS L3** | **Tasks** | **Funds Source** | 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 | Williams, Dawn | Detector Calibration | Managing flasher runs and coordinating low level calibration effort | NSF M&O Core |  |  | |  | |  |  | | 0.10 | 0.10 |
|  |  | Ice Properties | Managing flasher runs and coordinating low level calibration effort | NSF M&O Core |  |  | |  | |  |  | | 0.10 | 0.10 |
|  |  | Online Filter (Pnf) | TFT board member | Inst. In-Kind |  | 0.10 | |  | |  |  | |  | 0.10 |
|  |  | Online Filter (Pnf) | Tau WG lead | Inst. In-Kind |  | 0.25 | |  | |  |  | |  | 0.25 |
|  | **Williams, Dawn Total** | |  |  |  | **0.35** | |  | |  |  | | **0.20** | **0.55** |
| KE | Toale, Patrick | Education and Outreach | Supporting I3 outreach at UA | Inst. In-Kind | 0.05 |  | |  | |  |  | |  | 0.05 |
|  | **Toale, Patrick Total** | |  |  | **0.05** |  | |  | |  |  | |  | **0.05** |
| GR | Nakarmi,Prabandha | Detector Calibration | Domcal run vetting | NSF Base Grant |  |  | |  | |  |  | | 0.25 | 0.25 |
|  | **Nakarmi, Prabandha Total** | |  |  |  |  | |  | |  |  | | **0.25** | **0.25** |
| GR | Zhu, Mengxuan | Detector Calibration | Calibration with DOM-crossing muons | NSF Base Grant |  |  | |  | |  |  | | 0.25 | 0.25 |
|  | **Zhu, Mengxuan Total** | |  |  |  |  | |  | |  |  | | **0.25** | **0.25** |
| **UA Total** | | |  |  | **0.05** | | **0.35** | |  |  | |  | **0.70** | **1.10** |

**Faculty:**

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

Patrick Toale – education and outreach, aiding with annual Masterclass at UA

**A new postdoc will be hired in spring and added to the MOU by the spring 2017 collaboration meeting.**

**Ph.D. Students:**

James Pepper - dissertation work only, no service work. Listed here for completeness until his dissertation is defended, but not included on the table.

Thesis /Analysis topics: Heavy Gravitino Dark Matter Decay

Prabandha Nakarmi – vetting monthly domcal runs

Thesis /Analysis topics: TBD (still taking classes/qualifying exams)

Mengxuan Zhu – calibration with DOM-crossing muons

Thesis/Analysis topics: TBD (still taking classes/qualifying exams)

**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.

**Computing Resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2016** | | **2017** | |
|  | **CPU Cores** | **GPU Cards** | **CPU Cores** | **GPU Cards** |
| **IceCube** |  | 6 (Tesla K20m) |  | 6 (Tesla K20m) |
| **PINGU** |  |  |  |  |
| **Gen2** |  |  |  |  |