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

**Scope of Work**

**University of Texas at Arlington**

**Ben Jones**

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

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | Ben Jones | 2.5.2 Simulation Software | Sterilizer high dimensional fit code for high energy oscillation analyses |  |  |  |  | 0.20 |  | 0.20 |
|  | 2.6.2 Ice Properties | Ice model uncertainty estimation using multisim MC method |  |  |  |  |  | 0.20 | 0.20 |
|  | 2.1.4 Education & Outreach | UTA astroparticle physics summer school for high school students | 0.05 |  |  |  |  |  | 0.05 |
|  | **Ben Jones Total** | |  | **0.05** |  |  |  | **0.20** | **0.20** | **0.45** |
| GR | Timothy Blake Watson | 2.5.2 Simulation Software | Extension of fit codes to new parameter spaces and systematics |  |  |  |  | 0.05 |  | 0.05 |
|  | 2.6.2 Ice Properties | Ice model work with undergradutes |  |  |  |  |  | 0.50 | 0.50 |
|  | **Timothy Blake Watson Total** | |  |  |  |  |  | **0.05** | **0.50** | **0.55** |
| **UTA Total** | | |  | **0.05** |  |  |  | **0.25** | **0.70** | **1.00** |

**Faculty:**

Ben Jones. Works on sterile neutrino analysis, and oversees and contributes to undergraduate effort on ice model / calibration work.

**Scientists and Post Docs:**

None, but one postdoc to be hired, with 50% effort on IceCube, in 2017

**Grad Students:**

Blake Watson, Works on sterile neutrino analysis, in particular extension to 1+3 and development of fit codes; Contributes to and guides undergraduate efforts on ice model / calibration work.

**Description of planned analysis:**

UTA intends to pursue BSM oscillation physics using the high energy oscillations sample as previously used by the 1 year sterile neutrino analysis. Extension of this analysis to 5 years of data and larger parameter spaces (CP-violating and opposite mass ordering), as well as extension into other physics topics in this energy range (NSI, trident production, etc).

**Description of planned service work:**

As coordinated with Paolo Desiati, UTA will contribute to the problem of ascribing an uncertainty to the ice model using the multi-sim approach applied to flasher data,

**Computing Resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2016** | | **2017** | |
|  | **CPU Cores** | **GPU Cards** | **CPU Cores** | **GPU Cards** |
| **IceCube** |  |  | 50 (appearing soon) |  |
| **PINGU** |  |  |  |  |
| **Gen2** |  |  |  |  |