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

**Scope of Work**

**Ohio State University**

**James Beatty**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **4** (1 3 0)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 | BEATTY, JAMES | Enginering Support and R&D | PINGU Electronics and Calibration Development | Inst. In Kind |  | 0.10 |  |  |  |  | 0.10 |
|  | **BEATTY, JAMES Total** |  |  | **0.10** |  |  |  |  | **0.10** |
| PO | ANDERSON, TYLER | Enginering Support and R&D | PINGU Electronics and Calibration Development | Inst. In Kind |  | 0.25 |  |  |  |  | 0.25 |
|  | **ANDERSON, TYLER Total** |  |  | **0.25** |  |  |  |  | **0.25** |
|   | STAMATIKOS,MICHAEL | Simulation Software | GRB Analysis Tools | Inst. In Kind |   |  |  |  | 0.05 |  | 0.05 |
|  | **STAMATIKOS, MICHAEL Total** |  |  |  |  |  | **0.05** |  | **0.05** |
|   | SUTHERLAND,MICHAEL | Simulation Production | Simulation Production | Inst. In Kind |  |  |  | 0.10 |  |  | 0.10 |
|  | **SUTHERLAND, MICHAEL Total** |  |  |  |  | **0.10** |  |  |  |
| **OSU Total** |  |  |  |  | **0.35** |  | **0.10** | **0.05** |  | **0.50** |

**Faculty:**

Jim Beatty – 25% rising to 40% Analysis, PINGU PDOM Electronics (PINGU WBS 2.1.2)

**Scientists and Post Docs:**

Michael Sutherland 80% Analysis (70%) and simulations production (10%)

Tyler Anderson – 25% PINGU PDOM Electronics (PINGU WBS 2.1.2)
(shared postdoc with Penn State)

Michael Stamatikos- 10% GRB analysis tools

**Ph.D. Students:**

A student may be added over the next 6-9 months.

**General:**

We are reorganizing our IceCube effort at Ohio State following the departure of Carsten Rott to SKKU. We are currently exploring cosmic rays and associated muons as our analysis focus. Our hardware focus in the near term will be on the PINGU PDOM electronics. We are exploring options for contributions to simulations production as an additional service task.

Michael Sutherland will begin working with us on December 1. He will spend about 80% of his time on IceCube analysis and service activities.

Tyler Anderson will be beginning work as a shared postdoc with Penn State in the next few months. His OSU share of 25% will be dedicated to PINGU electronics development.

Michael Stamatikos is continuing his work on development of science analysis tools for correlated neutrino searches based upon electromagnetic parameters for each burst.

Carl Pfendner is fully focused on ARA as of spring 2013, and is no longer a member of IceCube.

**Note:** The activities and staffing levels in this MoU are appropriate for the year beginning October 1, 2013.