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

**Scope of Work**

**University of California, Berkeley**

**Buford Price**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **3** (1 2 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 | PRICE, BUFORD | Administration | Election Comm member | Inst. In-Kind | 0.10 |   |   |   |   | 0.10 |
|   | **PRICE, BUFORD Total** |  |  | **0.10** |  |  |  |  | **0.10** |
|   | FILIMONOV, KIRILL | Detector Monitoring | Coordinate Monitoring | Base Grant |   | 0.25 |   |   |   | 0.25 |
|   |  | Detector Monitoring | Coordinate Monitoring | **NSF M&O Core** |   | 0.25 |   |   |   | 0.25 |
|  |  | Administration | Pubcom member | Base Grant | 0.10 |   |   |   |   | 0.10 |
|   | **FILIMONOV, KIRILL Total** |  |  | **0.10** | **0.50** |  |  |  | **0.60** |
|   | UCB SC | Detector Monitoring | Monitoring shifts | Inst. In-Kind |   | 0.02 |   |   |   | 0.02 |
|   | **UCB SC Total** |  |  |  | **0.02** |  |  |  | **0.02** |
|   | WOSCHNAGG, KURT | Administration | Speakers Comm member | Base Grant | 0.10 |   |   |   |   | 0.10 |
|   |   | Detector Calibration | Calibration Lead | Base Grant |   | 0.15 |   |   |   | 0.15 |
|   |   | Physics Filters | Diffuse / atmosnu WG chair | Base Grant |   |   |   | 0.25 |   | 0.25 |
|   |   | Simulation Programs | Maintain and Verify Simulation of Photon Propagation and update Ice Properties | **NSF M&O Core** |   |   |   |   | 0.50 | 0.50 |
|   | **WOSCHNAGG, KURT Total** |  |  | **0.10** | **0.15** |  | **0.25** | **0.50** | **1.00** |
| GR | UCB GR | Detector Calibration | Calibration | Base Grant |   | 0.10 |   |   |   | 0.10 |
|   |  | Detector Monitoring | Monitoring shifts | Inst. In-Kind |   | 0.02 |   |   |   | 0.02 |
|   | **UCB GR Total** |  |  |  | **0.12** |  |  |  | **0.12** |
| **UCB Total** |  |  |  | **0.30** | **0.78** |  | **0.25** | **0.50** | **1.83** |

**Summary:**

The UC Berkeley group aims at making decisive contributions in two principal areas of analysis: searches for a neutrino signal from objects known in both space and time, and a search for a diffuse neutrino flux from unresolved sources. We will pursue the search for neutrinos coincident with core-collapse supernova explosions, and use very high-energy neutrinos from GRBs to search for Lorentz-invariance violation. In the diffuse analysis our work is focused on understanding/mitigating detector and simulation systematics to the high level required for an unambiguous detection of an astrophysical neutrino flux. A major part of this is measurement of ice properties and simulation of photon propagation. Our service work is focused on calibration (low and high level) and detector monitoring, both areas for which UCB has the primary institutional responsibility. On the construction side, UCB is responsible for deployment monitoring (PTS).

**Faculty:**

Buford Price - lead group, supervise students, Election Committee, ICB

**Scientists and Post Docs:**

Kurt Woschnagg - calibration lead, ice properties, systematics, diffuse analysis, speakers committee

Kirill Filimonov - detector monitoring framework and coordination, Pubcom member

**Students:**

New student (Nick Kemming, if he gets admitted to U.C Berkeley Ph.D. program) - calibration, diffuse analysis, systematics