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

**Scope of Work**

**University of Wisconsin – River Falls**

**Jim Madsen**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **2** (2 0 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 | Seunarine, Suruj | 2.6.1 Detector Calibration | Calibration-Flasher Studies | Inst In-Kind |  |  |   |  |   | 0.10 | 0.20 |
|  | 2.6.2 Ice Properties | Calibration-Flasher Studies | Inst In-Kind |  |  |  |  |  | 0.10 |  |
|  | 2.5.3. Reconstruction  | Low-Energy Extensions of IceTop | Inst In-Kind |  |  |  |  | 0.10 |  | 0.10 |
|   | **Seunarine, Suruj Total** |  |  |  |  |  |  | **0.10** | **0.20** | **0.30** |
| **UWRF Total** |  |  |  |  |  |  |  | **0.10** | **0.20** | **0.30** |

Additional Undergraduate Students Programs:

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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 |
| UG | UWRF UG | Detector Calibration | Detector Calibration | Inst In-Kind |  |  |  |  |  |  0.5 | 0.5 |
| UG | UWRF UG | Detector Calibration | Detector Calibration | Base Grant |  |  |  |  |  | 0.5 | 0.5 |
| UG | UWRF UG | Simulation Software  | Simulations Programs | Base Grant |  |  |  |  | 0.5 |  | 0.5 |
|   | **UWRF UG Total** |  |  |  |  |  |  | **0.5** | **1.0** | **1.5** |
| **UWRF Total** |  |  |  |  |  |  |  | **0.5** | **1.0** | **1.5** |

**Faculty:**

Suruj Seunarine – **Institution Lead**, Undergraduate Research, Calibration-Flasher Studies, Low-Energy Extensions of IceTop, Outreach, Masterclass

Glenn Spiczak – **Education and Outreach (Masterclass, Astrophysics Demos)**

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

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

* REU Site dedicated to IceCube and Antarctic Astrophysics, Upward Bound Program with IceCube inspired content
* Low-energy extensions of IceTop in conjunction with neutron monitors
* Calibration-Flasher Studies, simulation of in-ice light sources