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

**Scope of Work**

**Southern University**

**Ali R. Fazely**

**Ph.D Scientists** (Faculty Scientist/Post Doc Grads): **3** (2 1 0)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Labor Cat.** | **Names** | **WBS L3** | **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 | FAZELY, ALI | Reconstruction  | Reconstruction/ Analysis tools, data analysis, Cloud Computation; High Energy Neutrino Nucleon Cross Section Measurement and Simulation |   |   |   |   | 0.15 |  | 0.15 |
|   |   | Simulation Software | GEANT Simulation, Supernova Data Analysis |   |   |   |   | 0.15 |  | 0.15 |
|   | **FAZELY, ALI Total** |  |  |  |  |  | **0.30** |  | **0.30** |
|  | TER-ANTONYAN, SAMVEL | Central Computing Resources | Cloud Computing |   |   | 0.30 |   |   |  | 0.30 |
|   |   | Supernova System  | Supernova Data Analysis |    | 0.02 |   |   |   |  | 0.02 |
|   | **TER-ANTONYAN, SAMVEL Total** |  |  | **0.02** | **0.30** |  |  |  | **0.32** |
|  SC | Xianwu Xu | Reconstruction  | Reconstruction/ Analysis tools |   |   |   |   | 0.15 |  | 0.15 |
|   |   | Simulation Software | Simulation Programs |   |   |   |   | 0.15 |  | 0.15 |
|   |  **Total** |  |  |  |  |  | **0.30** |  | **0.30** |
| **SUBR Total** |  |  |  | **0.02** | **0.30** |  | **0.60** |  | **0.92** |

**Faculty:**

Ali R. Fazely – Detector Simulations, Analysis tools, Geant/GCALOR, High Energy Neutrino Nucleon Cross Section Measurement. (0.3 FTE) Source of Support: SUBR Faculty, Summer salary: None

All simulation work and data analysis are performed using “Cloud Computation”.

Samvel Ter-Antonyan – IceTop Simulation/Reconstruction. CORSIKA (0.3FTE), Source of Support: SUBR Faculty, Summer salary, None

**Scientist:**

Xianwu Xu – Detector Simulations, Analysis tools, Geant/GCALOR (0.3FTE). Source of Support: None

Note: Every member of Southern group, except Ali R. Fazely, is supported through non-IceCube funding and therefore should be considered as in-kind contribution. Furthermore, Xianwu Xu is doing *pro bono* Physics.