

IceCube M&O MoU SOW Summary v25.0 2018.0925
Authors Contribution

| v 25.0 September 25, 2018 | | Authors Head Count | | | IceCube Authors: M&O Responsibilities (FTE) | | | | | | | |
|--|-------------------------|--------------------|------------|------------------------|---|----------------------------|---|-------------------------------------|--------------------------------------|------------------|---------------------|--------------|
| Institution | Institutional Lead | Ph.D. Authors | Faculty | Scientists / Post Docs | Ph.D. Students | WBS 2.1 Program Management | WBS 2.2 Detector Operations & Maintenance | WBS 2.3 Computing & Data Management | WBS 2.4 Data Processing & Simulation | WBS 2.5 Software | WBS 2.6 Calibration | Total |
| University of Alabama* | Dawn Williams | 3 | (2 | 1 | 3) | 0.45 | 0.20 | 0.05 | | 0.60 | 0.55 | 1.85 |
| University of Alaska | Katherine Rawlins | 1 | (1 | 0 | 0) | | 0.25 | | | 0.20 | | 0.45 |
| Clark Atlanta | George Japaridze | 1 | (1 | 0 | 0) | | 0.02 | | | | | 0.02 |
| Drexel University | Naoko Kurahashi Neilson | 2 | (1 | 1 | 2) | 0.05 | 0.50 | | | 0.55 | | 1.10 |
| Georgia Tech | Ignacio Taboada | 1 | (1 | 0 | 3) | 0.05 | 0.50 | | | | | 0.55 |
| LBNL* | Spencer Klein | 4 | (2 | 2 | 1) | 0.13 | 0.24 | 1.08 | | | | 1.45 |
| Marquette University | Karen Andeen | 2 | (1 | 1 | 0) | 0.20 | 0.55 | | | | | 0.75 |
| Massachusetts Institute of Technology | Janet Conrad | 2 | (1 | 1 | 3) | 0.40 | | | 0.00 | 0.85 | 0.15 | 1.40 |
| Michigan State University* | Tyce DeYoung | 2 | (2 | 0 | 2) | 0.30 | 0.03 | | | 0.05 | 0.25 | 0.63 |
| Ohio State University | James Beatty | 2 | (1 | 1 | 0) | | | | 0.05 | 0.25 | | 0.30 |
| Pennsylvania State University* | Doug Cowen | 5 | (1 | 4 | 3) | 0.50 | 1.14 | | | 0.53 | | 2.17 |
| South Dakota School of Mines & Technology* | Xinhua Bai | 1 | (1 | 0 | 1) | 0.18 | 0.02 | | 0.15 | 1.45 | | 1.80 |
| Southern University | Ali Fazely | 3 | (2 | 1 | 0) | | 0.02 | 0.30 | | 0.60 | | 0.92 |
| Stony Brook University | Joanna Kiryluk | 1 | (1 | 0 | 2) | 0.15 | 0.10 | | 0.20 | | | 0.45 |
| University of California, Berkeley | Buford Price | 1 | (1 | 0 | 0) | 0.10 | | | | | | 0.10 |
| University of California, Irvine | Steve Barwick | 1 | (1 | 0 | 1) | | 0.02 | | | | | 0.02 |
| University of California, Los Angeles | Nathan Whitehorn | 1 | (1 | 0 | 0) | 0.20 | | | | | | 0.20 |
| University of Delaware* | Tom Gaisser | 9 | (6 | 3 | 2) | 0.35 | 1.40 | 0.20 | 0.50 | 0.30 | | 2.75 |
| University of Kansas | Dave Besson | 1 | (1 | 0 | 0) | | 0.02 | | | | | 0.02 |
| University of Maryland* | Greg Sullivan | 5 | (3 | 2 | 2) | 1.15 | 1.49 | 0.50 | 0.10 | 0.30 | | 3.54 |
| University of Rochester | Segev BenZvi | 1 | (1 | 0 | 1) | 0.15 | 0.50 | | | 0.15 | | 0.80 |
| University of Texas at Arlington | Benjamin Jones | 1 | (1 | 0 | 1) | 0.05 | | | | 0.25 | 0.70 | 1.00 |
| University of Wisconsin, River Falls* | Jim Madsen | 3 | (3 | 0 | 0) | 0.60 | | | | 0.10 | 0.20 | 0.90 |
| University of Wisconsin, Madison | Albrecht Karle | 16 | (5 | 11 | 16) | 2.23 | 3.65 | 0.00 | 2.30 | 1.30 | 2.85 | 12.33 |
| Yale University | Reina Maruyama | 1 | (1 | 0 | 0) | | 0.05 | | | 0.05 | | 0.10 |
| U.S. Institutions Subtotal | | 70 | (42 | 28 | 43) | 7.24 | 10.69 | 2.13 | 3.30 | 7.53 | 4.70 | 35.59 |
| DESY-Zeuthen | Marek Kowalski | 11 | (6 | 5 | 10) | 0.95 | 1.27 | 1.20 | | 0.50 | 0.30 | 4.22 |
| RWTH Aachen | Christopher Wiebusch | 2 | (1 | 1 | 11) | 0.45 | 0.52 | 0.20 | 0.50 | 0.95 | 1.20 | 3.82 |
| Universität Dortmund | Wolfgang Rhode | 2 | (1 | 1 | 5) | | 0.73 | | 0.30 | 1.00 | | 2.03 |
| Universität Mainz | Lutz Köpke | 3 | (2 | 1 | 6) | 0.25 | 1.45 | | | 0.45 | | 2.15 |
| University of Münster | Alexander Kappes | 2 | (1 | 1 | 2) | 0.30 | | | | | 0.20 | 0.50 |
| Universität Wuppertal | Klaus Helbing | 2 | (1 | 1 | 5) | | 0.93 | | | 0.40 | 0.20 | 1.53 |
| Humboldt Universität Berlin | Marek Kowalski | 1 | (1 | 0 | 1) | | | | | | 0.20 | 0.20 |
| Universität Bochum | Julia Tjus | 1 | (1 | 0 | 2) | 0.10 | 0.18 | | | 0.10 | | 0.38 |
| Technische Universität München | Elisa Resconi | 3 | (1 | 2 | 7) | | 0.05 | | 0.50 | 0.50 | | 1.05 |
| Universite Libre de Bruxelles | J. A. Aguilar Sanchez | 4 | (3 | 1 | 4) | 0.40 | 0.77 | | | 0.25 | | 1.42 |
| University of Gent | Dirk Ryckbosch | 2 | (1 | 1 | 5) | 0.05 | 0.03 | | 0.55 | 0.05 | | 0.68 |
| Vrije Universiteit Brussel | Catherine de Clercq | 3 | (3 | 0 | 3) | 0.50 | 0.06 | | | 0.35 | | 0.91 |
| Stockholm University | Klas Hultqvist | 4 | (3 | 1 | 2) | 0.30 | 0.56 | | | 0.20 | | 1.06 |
| Uppsala University | Olga Botner | 3 | (3 | 0 | 2) | 0.40 | 0.41 | | | 0.25 | | 1.06 |
| University of Alberta | Darren Grant | 5 | (4 | 1 | 5) | 0.70 | 0.60 | 0.45 | 1.15 | 0.65 | 0.45 | 4.00 |
| University of Oxford | Subir Sarkar | 1 | (1 | 0 | 0) | 0.20 | | | | | | 0.20 |
| University of Canterbury | Jenni Adams | 2 | (1 | 1 | 2) | 0.20 | 0.15 | | | 0.15 | 0.15 | 0.65 |
| University of Adelaide | Gary Hill | 2 | (1 | 1 | 1) | | | | | 1.90 | | 1.90 |
| Chiba University | Shigeru Yoshida | 5 | (3 | 2 | 0) | 0.10 | 0.20 | 0.80 | 0.00 | 0.70 | 0.25 | 2.05 |
| Université de Genève | Teresa Montaruli | 2 | (1 | 1 | 2) | 0.35 | 0.10 | | | 2.30 | | 2.75 |
| Universität Erlangen-Nürnberg | Gisela Anton | 3 | (2 | 1 | 2) | 0.20 | | | | 0.60 | | 0.80 |
| Niels Bohr Institute | Jason Koskinen | 5 | (2 | 3 | 1) | 0.15 | 0.30 | | 0.10 | 0.25 | 0.40 | 1.20 |
| Sungkyunkwan University | Carsten Rott | 2 | (1 | 1 | 4) | 0.30 | 0.80 | | | | 0.75 | 1.85 |
| Queen's University | Ken Clark | 1 | (1 | 0 | 0) | | | | | 0.10 | | 0.10 |
| Non-U.S. Institutions Subtotal | | 71 | (45 | 26 | 82) | 5.90 | 9.11 | 2.65 | 3.10 | 11.65 | 4.10 | 36.51 |
| Total U.S. & Non-U.S. | | 141 | (87 | 54 | 125) | 13.14 | 19.79 | 4.78 | 6.40 | 19.18 | 8.80 | 72.09 |

Changes since last official version are colored red

* IceCube M&O Subawardee Institutions