

**IceCube M&O MoU SOW Summary v27.0 2019.0915**  
**Authors Contribution**

v 27.0 September 15, 2019		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	2)	0.25	0.20	0.00	0.05	0.05	0.30	0.85
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	1)	0.25	0.10			0.55		0.90
Georgia Tech	Ignacio Taboada	1	(1	0	3)	0.05	0.75			0.10		0.90
LBNL*	Spencer Klein	4	(2	2	1)	0.13	0.24	1.08				1.45
Loyola University Chicago	Rasha Abbasi	1	(1	0	0)							0.00
Marquette University	Karen Andeen	2	(1	1	0)	0.20	0.55					0.75
Massachusetts Institute of Technology	Janet Conrad	2	(1	1	3)	0.60	0.00	0.3	0.0	0.60	0.00	1.20
Mercer University	Frank McNally	1	(1	0	0)							0.00
Michigan State University*	Tyce DeYoung	8	(5	3	9)	1.05	0.28	0.35	0.15	0.40	0.40	2.63
Ohio State University	James Beatty	2	(1	1	0)				0.05	0.25		0.30
Pennsylvania State University*	Doug Cowen	6	(2	4	3)	0.70	0.62		0.05	0.45		1.82
South Dakota School of Mines & Technology*	Xinhua Bai	1	(1	0	2)	0.28	0.02		0.20	2.00		2.50
Southern University	Ali Fazely	3	(2	1	0)		0.02	0.30		0.60		0.92
Stony Brook University	Joanna Kiryluk	1	(1	0	1)	0.15	0.10		0.10	0.10		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)	0.15				0.10		0.25
University of Delaware*	Tom Gaisser	9	(6	3	5)	0.55	1.15	0.10	1.05	0.55	0.25	3.65
University of Kansas	Dave Besson	1	(1	0	0)		0.02					0.02
University of Maryland*	Greg Sullivan	6	(3	3	2)	1.15	1.01	0.35	0.50	0.30	0.00	3.31
University of Rochester	Segev BenZvi	1	(1	0	2)	0.25	0.45			0.10		0.80
University of Texas at Arlington	Benjamin Jones	1	(1	0	2)	0.05				1.15	0.60	1.80
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	15	(5	10	13)	2.23	2.56	0.00	1.60	0.65	2.15	9.19
Yale University	Reina Maruyama	1	(1	0	0)	0.05	0.05			0.05		0.15
<b>U.S. Institutions Subtotal</b>		<b>79</b>	<b>(48</b>	<b>31</b>	<b>50)</b>	<b>8.79</b>	<b>8.40</b>	<b>2.18</b>	<b>3.75</b>	<b>8.30</b>	<b>3.90</b>	<b>35.32</b>
DESY-Zeuthen	Marek Kowalski	10	(5	5	10)	1.20	1.32	1.10	0.00	0.40	0.25	4.27
Karlsruhe Institute of Technology	Andreas Haungs	5	(2	3	5)	0.20	1.30	0.15	0.45	0.35	0.20	2.65
RWTH Aachen	Christopher Wiebusch	2	(1	1	8)	0.75	0.32	0.30	0.55	0.75	0.75	3.42
Universität Dortmund	Wolfgang Rhode	2	(1	1	5)		0.73		0.30	1.00		2.03
Universität Mainz	Lutz Köpke	3	(2	1	5)	0.25	1.45			0.40		2.10
University of Münster	Alexander Kappes	2	(1	1	5)	0.40						0.40
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	2	(1	1	2)	0.10	0.38			0.10		0.58
Technische Universität München	Elisa Resconi	4	(1	3	8)		0.05		1.00	1.10	0.20	2.35
Université Libre de Bruxelles	J. A. Aguilar Sanchez	5	(3	2	3)	0.85	0.52					1.37
University of Gent	Dirk Ryckbosch	2	(1	1	4)	0.05	0.03		0.55	0.05		0.68
Vrije Universiteit Brussel	Nick van Eijndhoven	3	(3	0	3)	1.45	0.06		0.10	0.45		2.06
Stockholm University	Klas Hultqvist	3	(3	0	2)	0.40	0.11		0.25	0.20		0.96
Uppsala University	Olga Botner	3	(3	0	2)	0.35	0.41				0.15	0.91
University of Alberta	Darren Grant	3	(2	1	1)		0.60	0.40	0.30	0.30	0.60	2.20
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	1	(1	0	1)					0.90		0.90
Chiba University	Shigeru Yoshida	5	(3	2	0)	0.10	0.20	0.80	0.00	0.70	0.10	1.90
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	3)	0.20				0.55	0.05	0.80
Niels Bohr Institute	Jason Koskinen	4	(2	2	1)	0.25	0.55		0.70	0.10		1.60
Sungkyunkwan University	Carsten Rott	2	(1	1	5)	0.15	0.69				0.20	1.04
Queen's University	Ken Clark	1	(1	0	0)					0.10		0.10
<b>Non-U.S. Institutions Subtotal</b>		<b>73</b>	<b>(44</b>	<b>29</b>	<b>83)</b>	<b>7.45</b>	<b>9.90</b>	<b>2.75</b>	<b>4.20</b>	<b>10.30</b>	<b>3.05</b>	<b>37.65</b>
<b>Total U.S. &amp; Non-U.S.</b>		<b>152</b>	<b>(92</b>	<b>60</b>	<b>133)</b>	<b>16.24</b>	<b>18.30</b>	<b>4.93</b>	<b>7.95</b>	<b>18.60</b>	<b>6.95</b>	<b>72.97</b>

Changes since last official version are colored red

\* IceCube M&O Subaward Institutions