

**IceCube M&O MoU SOW Summary v21.1 2016.1122.xlsx**  
**Authors Contribution**

v 21.1, November 22, 2016		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	2	(2 0 2)		0.05	0.35				0.70	1.10
University of Alaska	Katherine Rawlins	1	(1 0 0)			0.20			0.20		0.40
Clark Atlanta	George Japaridze	1	(1 0 0)			0.02					0.02
Drexel University	Naoko Kurahashi Neilson	2	(1 1 2)		0.05	0.73			0.70		1.48
Georgia Tech	Ignacio Taboada	1	(1 0 1)			0.25					0.25
LBNL	Spencer Klein	5	(3 2 2)		0.13	0.24	0.23	0.15	0.15	0.20	1.10
Marquette University	Karen Andeen	2	(1 1 0)		0.20	0.50	0.15		0.55		1.40
Massachusetts Institute of Technology	Janet Conrad	3	(1 2 4)		0.10				1.60	0.10	1.80
Michigan State University	Tyce DeYoung	4	(2 2 2)		0.35	0.03	0.25	0.28	0.38	0.50	1.79
Ohio State University	James Beatty	4	(1 3 0)			0.35		0.10	0.05		0.50
Pennsylvania State University	Doug Cowen	5	(1 4 3)		0.40	0.82	0.25	0.08	1.37		2.92
South Dakota School	Xinhua Bai	1	(1 0 1)		0.10	0.02		0.10	0.55		0.77
Southern University	Ali Fazely	3	(2 1 0)			0.02	0.30		0.60		0.92
Stony Brook University	Joanna Kirylyuk	1	(1 0 2)		0.10	0.35		0.20	0.05	0.10	0.80
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 Delaware	Tom Gaisser	6	(4 2 2)		0.30	1.10			0.55		1.95
University of Kansas	Dave Besson	1	(1 0 0)			0.02					0.02
University of Maryland	Greg Sullivan	6	(3 3 4)		1.20	0.96	1.63	0.40	0.73		4.91
University of Rochester	Segev BenZvi	1	(1 0 1)			0.35			0.40		0.75
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	20	(6 14 14)		2.23	2.90	0.10	1.20	1.80	2.95	11.18
Yale University	Reina Maruyama	1	(1 0 0)			0.05			0.05		0.10
<b>U.S. Institutions Subtotal</b>		<b>75</b>	<b>(40 35 41)</b>		<b>5.91</b>	<b>9.27</b>	<b>2.91</b>	<b>2.51</b>	<b>9.83</b>	<b>4.75</b>	<b>35.17</b>
DESY-Zeuthen	Marek Kowalski	10	(6 4 9)		0.65	1.22	1.20	0.25	0.50	0.10	3.92
RWTH Aachen	Christopher Wiebusch	2	(1 1 10)		0.30	0.57	0.30	0.50	1.15	0.50	3.32
Universität Dortmund	Wolfgang Rhode	2	(1 1 6)			0.83		0.30	1.00		2.13
Universität Mainz	Lutz Köpke	3	(2 1 7)		0.50	1.75					2.25
University of Münster	Alexander Kappes	1	(1 0 4)		0.20				0.10		0.30
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 3)			0.13			0.20		0.33
Technische Universität München	Elisa Resconi	1	(1 0 4)			0.05		1.00	0.50		1.55
Université Libre de Bruxelles	J. A. Aguilar Sanchez	2	(1 1 3)		0.20	1.07		0.20	0.55		2.02
Université de Mons	Evelyne Daubie	1	(0 1 0)			0.10	0.30	0.25			0.65
University of Gent	Dirk Ryckbosch	2	(1 1 4)		0.10	0.03			0.40		0.53
Vrije Universiteit Brussel	Catherine de Clercq	4	(2 2 2)		0.45	0.37			1.25		2.07
Stockholm University	Klas Hultqvist	5	(4 1 2)		0.50	0.91			0.15		1.56
Uppsala University	Olga Botner	3	(3 0 2)		0.90	0.48			0.25		1.63
University of Alberta	Darren Grant	3	(2 1 3)		0.85	0.25	1.35		0.15	0.35	2.95
University of Oxford	Subir Sarkar	1	(1 0 0)		0.20	0.02					0.22
University of Canterbury	Jenni Adams	2	(1 1 2)		0.05	0.30			0.05	0.10	0.50
University of Adelaide	Gary Hill	2	(1 1 1)						1.90		1.90
Chiba University	Shigeru Yoshida	6	(3 3 1)			0.23		0.05	0.70	0.60	1.58
Université de Genève	Teresa Montaruli	3	(1 2 3)		0.30	0.10		0.10	1.50		2.00
Universität Erlangen-Nürnberg	Gisela Anton	3	(2 1 2)		0.20				0.50		0.70
Niels Bohr Institute	Jason Koskinen	1	(1 0 2)		0.15	0.31		0.10	0.15		0.71
Sungkyunkwan University	Carsten Rott	2	(1 1 5)		0.30	0.97				0.55	1.82
SNOLAB / Queen's University	Ken Clark	1	(1 0 0)				0.10		0.10		0.20
<b>Non-U.S. Institutions Subtotal</b>		<b>65</b>	<b>(40 25 81)</b>		<b>5.85</b>	<b>10.62</b>	<b>3.25</b>	<b>2.75</b>	<b>11.50</b>	<b>2.60</b>	<b>36.57</b>
<b>Total U.S. &amp; Non-U.S.</b>		<b>140</b>	<b>(80 60 122)</b>		<b>11.76</b>	<b>19.89</b>	<b>6.16</b>	<b>5.26</b>	<b>21.33</b>	<b>7.35</b>	<b>71.74</b>

Changes since last official version are colored red