

GEMMA

Gemini in the Era of Multi-Messenger Astronomy

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Budget Narrative

Cooperative Support Agreement 1839225
Submitted March 6, 2019



NRC-CMRC



Overview

This revised budget justification for the award “Gemini in the Era of MMA: High Image Quality and Rapid Response” describes the request for approval for fiscal years 2019 through 2024 (10/1/2018 – 9/31/2024). The narrative describes key costs as presented on NSF FastLane Form 1030.

Line B2 - Other Professionals: 6,824,937

Personnel costs are estimated on the basis of Job Descriptions representing the skills and knowledge required by the projects in this budget request using averages of current salaries for staff in comparable positions within Gemini Observatory.

Fringe Benefits: 3,833,567

The rate of FY 2019 rate of 56.17% is applied to 83% of the base pay - the "work hours" of the salary of personnel noted in the section above.

Table 2 – FY19 Proposed Rates

Description	Fringe Benefit Rates	
	Rate	Base
U.S. Dollar (\$) Paid Employees	56.17%	Salaries and wages
Chilean Employees	40.23%	Salaries and wages
Temporary Employees	16.22%	Salaries and wages

Line D - Capital Equipment: 2,880,903

Permanent equipment includes adaptive optics, real time computer and components, mechanical, electronics and facilities equipment. The capital items in the proposal are anticipated to be “custom-made.” Most equipment estimates were based on historical costs associated with similar purchased equipment, with allowance made for changes in design and technology. In some circumstances components that are “COTS” (Commercial off-the-shelf) and costs were estimated from vendor price lists.

Line E1 – Domestic Travel

Travel costs are estimated based on historical costs for similarly scaled Gemini Projects.

Description	Total Cost
Standard functional travel	390,364

Line E2 – Foreign Travel

Foreign travel costing assumptions are described in detail in the CEP.

Description	Total Cost
Standard functional travel	533,899
Total Travel	924,262

Line G1 – Materials and Supplies: 191,314

See the CEP for an explanation of materials & supplies.

Line G2 – Publication Costs: 0

Line G3 - Consultants: 24,000

Consultant costs are budgeted for an external facilitator to coordinate the PIO project's conferences.

Line G5 - G7 –Other: 9,781,917

Manufacturing of project components may be obtained through a procurement process resulting in a sub contract. See the CEP for details.

Line I – Indirect Costs:

Standard AURA-Gemini indirect costs are explained in the CEP.

Description	Total Cost
CAS/HR indirect rate of 5.76% to modified total direct costs	893,049
AURA F&A of 4.00% applied to modified total direct costs	620,173
Total	1,513,222

Line J - Total Direct and Indirect Costs: 25,974,122

GEMMA - SUMMARY BUDGET - ALL PROJECTS							
August 13, 2019							
<i>Award Number 1839225</i>	FYE19	FYE20	FYE21	FYE22	FYE23	FYE24	TOTAL
Senior Personnel	0	0	0	0	0	0	0
Other Personnel	647,287	1,748,911	1,746,406	1,319,535	614,438	748,360	6,824,937
Total Salaries and Wages	647,287	1,748,911	1,746,406	1,319,535	614,438	748,360	6,824,937
Fringe Benefits	363,581	982,363	980,956	741,183	345,130	420,354	3,833,567
Total Salaries/Wages/Benefits	1,010,867	2,731,274	2,727,362	2,060,718	959,568	1,168,714	10,658,504
Equipment	0	128,000	2,440,903	312,000	0	0	2,880,903
Domestic Travel	41,305	133,179	78,179	48,589	48,241	40,870	390,364
Foreign Travel	50,155	195,288	102,391	52,075	50,111	83,879	533,899
Total Travel	91,460	328,468	180,570	100,664	98,352	124,749	924,262
Participant Support	0	0	0	0	0	0	0
Other Direct Costs: Materials and Supplies	19,359	42,969	39,985	16,592	60,714	11,694	191,314
Other Direct Costs: Publication/Documentation/Disseminat	0	0	0	0	0	0	0
Other Direct Costs: Consultant Services	12,000	0	12,000	0	0	0	24,000
Other Direct Costs: Computer Services	0	0	0	0	0	0	0
Other Direct Costs: Subwards	0	0	0	0	0	0	0
Other Direct Costs: Other	64,604	1,583,803	1,861,181	1,625,137	2,671,258	1,975,934	9,781,917
Total Other Direct Costs	95,964	1,626,772	1,913,167	1,641,729	2,731,972	1,987,627	9,997,231
Total Direct Costs	1,198,292	4,814,514	7,262,002	4,115,111	3,789,893	3,281,090	24,460,900
Indirect Costs - Calculated on Total Project in IDC Account	116,271	333,890	543,088	256,550	125,713	137,709	1,513,222
Total Direct and Indirect Costs	1,314,563	5,148,404	7,805,090	4,371,661	3,915,606	3,418,799	25,974,122
CSA Period of Performance Start:	10/1/18						
CSA Period of Performance End:	9/30/24						

GEMMA-CONTRACT, MTDC & BASIS FOR FEES							
AT 8/13/19							
	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	-Total Fiscal Years
CONTRACTS by Project							
GR2120000 GNAO/RTC	31,985	1,276,510	1,797,570	1,561,525	2,526,854	1,895,140	9,089,583
GR2150000 PIO, Publications, Education MMA	0	217,000	0	0	0	0	217,000
TOTAL CONTRACTS	31,985	1,493,510	1,797,570	1,561,525	2,526,854	1,895,140	9,306,583
MTDC ADJUSTMENT - Contract Pmts over \$25k per year	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	-Total Fiscal Years
GNAO/RTC Contracts -4contracts over 6 years @ \$25k each	(6,985)	(1,201,510)	(1,697,570)	(1,486,525)	(2,501,854)	(1,870,140)	(8,764,583)
PIO, Publications, Education MMA		(192,000)					(192,000)
Total MTDC Adjustment	(6,985)	(1,393,510)	(1,697,570)	(1,486,525)	(2,501,854)	(1,870,140)	(8,956,583)
Basis for Fees	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	-Total Fiscal Years
GR2120000 GNAO	25,000	75,000	100,000	75,000	25,000	25,000	325,000
GR2150000 PIO, Publications, Education MMA	0	25,000	0	0	0	0	25,000
Basis for Fees - Contracts	25,000	100,000	100,000	75,000	25,000	25,000	350,000

WBS 1.2 & 1.3 GNAO/RTC							
<i>August 13, 2019</i>							
<i>Award Number 1839225</i>							
	FYE19	FYE20	FYE21	FYE22	FYE23	FYE24	TOTAL
Senior Personnel	0	0	0	0	0	0	0
Other Personnel	426,045	1,010,181	1,046,385	864,961	431,798	558,220	4,337,590
Total Salaries and Wages	426,045	1,010,181	1,046,385	864,961	431,798	558,220	4,337,590
Fringe Benefits	239,310	567,419	587,754	485,849	242,541	313,552	2,436,425
Total Salaries/Wages/Benefits	665,355	1,577,600	1,634,139	1,350,810	674,339	871,772	6,774,015
Equipment	0	128,000	2,440,903	312,000	0	0	2,880,903
Domestic Travel	13,257	39,331	39,030	23,929	10,026	14,451	140,024
Foreign Travel	14,775	76,966	49,872	28,868	19,778	39,281	229,540
Total Travel	28,032	116,296	88,902	52,797	29,804	53,732	369,564
Participant Support	0	0	0	0	0	0	0
Other Direct Costs: Materials and Supplies	2,288	6,863	6,863	6,863	55,663	6,860	85,400
Other Direct Costs: Publication/Documentation/Disseminat	0	0	0	0	0	0	0
Other Direct Costs: Consultant Services	0	0	0	0	0	0	0
Other Direct Costs: Computer Services	0	0	0	0	0	0	0
Other Direct Costs: Subawards	0	0	0	0	0	0	0
Other Direct Costs: Other	31,985	1,276,509	1,797,570	1,561,525	2,526,853	1,895,140	9,089,583
Total Other Direct Costs	34,273	1,283,372	1,804,433	1,568,388	2,582,516	1,902,000	9,174,983
Total Direct Costs	727,660	3,105,269	5,968,377	3,283,995	3,286,659	2,827,504	19,199,464
Indirect Costs - Calculated on Total Project in IDC Account	0	0	0	0	0	0	0

WBS 1.4 Ops Software Upgrade					
<i>August 13, 2019</i>					
<i>Award Number 1839225</i>	FYE19	FYE20	FYE21	FYE22	TOTAL
Senior Personnel	0	0	0	0	0
Other Personnel	76,413	480,301	453,281	268,831	1,278,827
Total Salaries and Wages	76,413	480,301	453,281	268,831	1,278,827
Fringe Benefits	42,921	269,785	254,608	151,003	718,317
Total Salaries/Wages/Benefits	119,335	750,086	707,889	419,834	1,997,144
Equipment	0	0	0	0	0
Domestic Travel	0	2,777	5,722	2,777	11,277
Foreign Travel	9,754	52,540	35,004	10,837	108,134
Total Travel	9,754	55,317	40,725	13,614	119,411
Participant Support	0	0	0	0	0
Other Direct Costs: Materials and Supplies	0	0	0	0	0
Other Direct Costs: Consultant Services	0	0	0	0	0
Other Direct Costs: Computer Services	0	0	0	0	0
Other Direct Costs: Subawards	0	0	0	0	0
Other Direct Costs: Other	0	0	0	0	0
Total Other Direct Costs	0	0	0	0	0
Total Direct Costs	129,088	805,403	748,614	433,448	2,116,554
Indirect Costs - <i>Calculated on Total Project in IDC Account</i>	0	0	0	0	0
Total Direct and Indirect Costs	129,088	805,403	748,614	433,448	2,116,554
CSA Period of Performance Start:	10/1/18				
CSA Period of Performance End:	9/30/24				

<i>WBS 1.5 PIO, Publications, Education</i>					
<i>August 13, 2019</i>					
<i>Award Number 1839225</i>	FYE19	FYE20	FYE21	FYE22	TOTAL
Senior Personnel	0	0	0	0	0
Other Personnel	32,703	91,287	74,571	8,408	206,970
Total Salaries and Wages	32,703	91,287	74,571	8,408	206,970
Fringe Benefits	18,370	51,276	41,887	4,723	116,255
Total Salaries/Wages/Benefits	51,073	142,563	116,458	13,131	323,225
Equipment	0	0	0	0	0
Domestic Travel	0	47,390	12,198	0	59,588
Foreign Travel	0	25,895	9,065	0	34,960
Total Travel	0	73,285	21,264	0	94,548
Participant Support	0	0	0	0	0
Other Direct Costs: Materials and Supplies	1,500	6,000	3,000	1,500	12,000
Other Direct Costs: Publication/Documentation/Dissemination	0	0	0	0	0
Other Direct Costs: Consultant Services	12,000	0	12,000	0	24,000
Other Direct Costs: Computer Services	0	0	0	0	0
Other Direct Costs: Subawards	0	0	0	0	0
Other Direct Costs: Other	0	226,500	0	0	226,500
Total Other Direct Costs	13,500	232,500	15,000	1,500	262,500
Total Direct Costs	64,573	448,348	152,721	14,631	680,273
Indirect Costs - <i>Calculated on Total Project in IDC Account</i>	0	0	0	0	0
Total Direct and Indirect Costs	64,573	448,348	152,721	14,631	680,273
CSA Period of Performance Start:	10/1/18				
CSA Period of Performance End:	9/30/24				