

**U.S. Department of Energy
Summary Budget Page**

SUMMARY

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 1 of 6	
TITLE EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR E. Sheldon				Requested Duration: 60 (months)	
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)		DOE Funded Person-mos.		Funds Requested	Funds Granted
		CAL	ACAD	SUMR	by Applicant by DOE
1. Dr. E. Sheldon		45.0	0.0	0.0	\$405,232
2.		0.0	0.0	0.0	\$0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (5) Total Senior Personnel (1 - 6)		45.0	0.0	0.0	\$405,232
B. OTHER PERSONNEL (show numbers in brackets)					
1. 5 Post Doctoral Associates		60.0	0.0		\$281,172
2. 0 Other Professional		0.0			
3. 5 Graduate Students * See Subcontracts below		60.0			\$0
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$686,404	
C. Fringe Benefits (if charged as Direct Costs)				\$231,764	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$918,168	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel 1. Domestic (incl. Canada and U.S. Possessions)				\$32,713	
2. Foreign				\$26,020	
Total Travel				\$58,733	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, tuypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants ()		Total Cost		\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$504,792	
2. Publication Costs/Documentation/Dissemination				\$0	
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$57,369	
5. Subcontracts for Graduate Students				\$197,753	
6. Other Organizational Burden & Electric Power				\$133,318	
Total Other Direct Costs				\$893,232	
H. Total Direct Costs (A through G)				\$1,870,133	
I. Indirect Costs (specify rate and base)		Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates			
Total Indirect Costs				\$678,897	
J. Total Direct and Indirect Costs (H + I)				\$2,549,030	
K. Amount of any Required cost sharing from Non-federal Sources				\$0	
L. Total Cost of Project (J + K)				\$2,549,030	

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Year 1

OMB Control No.
1910-1400

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 2 of 6	
TITLE EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR E. Sheldon				Requested Duration: 12 (months)	
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)		DOE Funded Person-mos.		Funds Requested	Funds Granted
		CAL	ACAD	SUMR	by Applicant
1. Dr. E. Sheldon		9.0	0.0	0.0	\$74,817
2.		0.0	0.0	0.0	\$0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (1) Total Senior Personnel (1 - 6)		9.0	0.0	0.0	\$74,817
B. OTHER PERSONNEL (show numbers in brackets)					
1. 1 Dr. Zhaoming Ma		12.0	0.0		\$51,912
2. 0 Other Professional		0.0			\$0
3. 1 Graduate Students * See Subcontracts below (\$38,000)		12.0			\$0
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$126,729	
C. Fringe Benefits (if charged as Direct Costs)				\$42,015	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$168,744	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel					
1. Domestic (incl. Canada and U.S. Possessions)				\$6,282	
2. Foreign				\$5,000	
Total Travel				\$11,282	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, ttypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants () Total Cost				\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$97,000	
2. Publication Costs/Documentation/Dissemination					
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$10,532	
5. Subcontracts for Graduate Students				\$38,000	
6. Other Organizational Burden & Electric Power				\$24,502	
Total Other Direct Costs				\$170,034	
H. Total Direct Costs (A through G)				\$350,060	
I. Indirect Costs (specify rate and base)					
Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates					
Total Indirect Costs				\$126,883	
J. Total Direct and Indirect Costs (H + I)				\$476,943	
K. Amount of any Required cost sharing from Non-federal Sources					
L. Total Cost of Project (J + K)				\$476,943	

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Year 2

OMB Control No.
1910-1400

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 3 of 6	
TITLE EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR E. Sheldon				Requested Duration: 12 (months)	
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)				DOE Funded Person-mos.	
				Funds Requested by Applicant	Funds Granted by DOE
				CAL	ACAD
				SUMR	
1. Dr. E. Sheldon				9.0	0.0
				0.0	0.0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (1) Total Senior Personnel (1 - 6)				9.0	0.0
				0.0	0.0
B. OTHER PERSONNEL (show numbers in brackets)					
1. 1 Dr. Zhaoming Ma				12.0	0.0
2. 0 Other Professional				0.0	
3. 1 Graduate Students * See Subcontracts below (\$38,760)				12.0	
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$131,797	
C. Fringe Benefits (if charged as Direct Costs)				\$44,685	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$176,482	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel					
1. Domestic (incl. Canada and U.S. Possessions)				\$6,413	
2. Foreign				\$5,100	
Total Travel				\$11,513	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, ttypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants () Total Cost				\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$98,940	
2. Publication Costs/Documentation/Dissemination					
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$10,910	
5. Subcontracts for Graduate Students				\$38,760	
6. Other Organizational Burden & Electric Power				\$25,625	
Total Other Direct Costs				\$174,235	
H. Total Direct Costs (A through G)				\$362,230	
I. Indirect Costs (specify rate and base)					
Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates					
Total Indirect Costs				\$131,415	
J. Total Direct and Indirect Costs (H + I)				\$493,645	
K. Amount of any Required cost sharing from Non-federal Sources					
L. Total Cost of Project (J + K)				\$493,645	

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Year 3

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 4 of 6	
TITLE EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR E. Sheldon				Requested Duration: 12 (months)	
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)		DOE Funded Person-mos.		Funds Requested	Funds Granted
		CAL	ACAD	SUMR	by Applicant by DOE
1. Dr. E. Sheldon		9.0	0.0	0.0	\$80,922
2.		0.0	0.0	0.0	\$0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (1) Total Senior Personnel (1 - 6)		9.0	0.0	0.0	\$80,922
B. OTHER PERSONNEL (show numbers in brackets)					
1. 1 Dr. Zhaoming Ma		12.0	0.0		\$56,148
2. 0 Other Professional		0.0			\$0
3. 1 Graduate Students * See Subcontracts below (\$39,535)		12.0			\$0
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$137,070	
C. Fringe Benefits (if charged as Direct Costs)				\$46,471	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$183,541	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel					
1. Domestic (incl. Canada and U.S. Possessions)				\$6,541	
2. Foreign				\$5,202	
Total Travel				\$11,743	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, tuypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants ()		Total Cost		\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$100,919	
2. Publication Costs/Documentation/Dissemination					
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$11,595	
5. Subcontracts for Graduate Students				\$39,535	
6. Other Organizational Burden & Electric Power				\$26,650	
Total Other Direct Costs				\$178,699	
H. Total Direct Costs (A through G)				\$373,983	
I. Indirect Costs (specify rate and base)		Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates			
Total Indirect Costs				\$135,757	
J. Total Direct and Indirect Costs (H + I)				\$509,740	
K. Amount of any Required cost sharing from Non-federal Sources					
L. Total Cost of Project (J + K)				\$509,740	

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Year 4

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 5 of 6	
EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK					
TITLE ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR				Requested Duration: 12 (months)	
E. Sheldon					
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)		DOE Funded Person-mos.		Funds Requested	Funds Granted
		CAL	ACAD	SUMR	by Applicant by DOE
1. Dr. E. Sheldon		9.0	0.0	0.0	\$84,159
2.		0.0	0.0	0.0	\$0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (1) Total Senior Personnel (1 - 6)		9.0	0.0	0.0	\$84,159
B. OTHER PERSONNEL (show numbers in brackets)					
1. 1 Post Doc TBD		12.0	0.0		\$58,394
2. 0 Other Professional		0.0			\$0
3. 1 Graduate Students * See Subcontracts below (\$40,326)		12.0			\$0
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$142,553	
C. Fringe Benefits (if charged as Direct Costs)				\$48,330	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$190,883	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel 1. Domestic (incl. Canada and U.S. Possessions)				\$6,672	
2. Foreign				\$5,306	
Total Travel				\$11,978	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, ttypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants () Total Cost				\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$102,937	
2. Publication Costs/Documentation/Dissemination					
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$11,971	
5. Subcontracts for Graduate Students				\$40,326	
6. Other Organizational Burden & Electric Power				\$27,716	
Total Other Direct Costs				\$182,950	
H. Total Direct Costs (A through G)				\$385,811	
I. Indirect Costs (specify rate and base)					
Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates					
Total Indirect Costs				\$140,148	
J. Total Direct and Indirect Costs (H + I)				\$525,959	
K. Amount of any Required cost sharing from Non-federal Sources					
L. Total Cost of Project (J + K)				\$525,959	

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Year 5

OMB Control No.
1910-1400

ORGANIZATION Brookhaven National Laboratory				Budget Page No.: 6 of 6	
TITLE EARLY CAREER: MEASURING DARK ENERGY WITH GRAVITATIONAL LENSING IN THE DARK ENERGY SURVEY					
PRINCIPAL INVESTIGATOR/PROJECT DIRECTOR E. Sheldon				Requested Duration: 12 (months)	
A. SENIOR PERSONNEL: PI/PD, Co-Pis, Faculty and Other Senior Associates (List each separately with title; A.6. Show number in brackets)		DOE Funded Person-mos.		Funds Requested	Funds Granted
		CAL	ACAD	SUMR	by Applicant
1. Dr. E. Sheldon		9.0	0.0	0.0	\$87,525
2.		0.0	0.0	0.0	\$0
3.					
4.					
5.					
6. () Others (List individually on Budget Explanation Page)					
7. (1) Total Senior Personnel (1 - 6)		9.0	0.0	0.0	\$87,525
B. OTHER PERSONNEL (show numbers in brackets)					
1. 1 Post Doc TBD		12.0	0.0		\$60,730
2. 0 Other Professional		0.0			\$0
3. 1 Graduate Students * See Subcontracts below (\$41,132)		12.0			\$0
4. () Undergraduate Students					
5. () Secretarial - Clerical					
6. () Others (List individually on Budget Explanation Page)					
Total Salaries and Wages (A + B)				\$148,255	
C. Fringe Benefits (if charged as Direct Costs)				\$50,263	
Total Salaries, Wages and Fringe Benefits (A + B + C)				\$198,518	
D. Permanent Equipment (List item and dollar amount for each item)					
Total Permanent Equipment				\$0	
E. Travel					
1. Domestic (incl. Canada and U.S. Possessions)				\$6,805	
2. Foreign				\$5,412	
Total Travel				\$12,217	
F. Trainee/Participant Costs					
1. Stipends (Itemize levels, ttypes and totals on budget justification page)				\$0	
2. Tuition & Fees				\$0	
3. Trainee Travel				\$0	
4. Other (fully explain on justification page)				\$0	
Total Participants () Total Cost				\$0	
G. Other Direct Costs					
1. Materials and Supplies				\$104,996	
2. Publication Costs/Documentation/Dissemination					
3. Consultant Services				\$0	
4. Computer (ADPE) Services				\$12,361	
5. Subcontracts for Graduate Students				\$41,132	
6. Other Organizational Burden & Electric Power				\$28,825	
Total Other Direct Costs				\$187,314	
H. Total Direct Costs (A through G)				\$398,049	
I. Indirect Costs (specify rate and base)		Composite G&A rate of 39.45% on Total Modified Costs. Material Burden rate of 8.25% on purchases and travel. See Budget Explanation and Rates tab for breakdown of rates			
Total Indirect Costs				\$144,694	
J. Total Direct and Indirect Costs (H + I)				\$542,743	
K. Amount of any Required cost sharing from Non-federal Sources					
L. Total Cost of Project (J + K)				\$542,743	

Budget Explanation

Title	Name	Role	Year 1	Year 2	Year 3	Year 4	Year 5
			FTE/Year				
Personnel							
Asst. Physicist	Dr. Erin Sheldon	Process DES & SDSS Data to constrain properties of Dark Energ	0.75	0.75	0.75	0.75	0.75
Post Doc	Dr. Zhaoming Ma	Analyze DES & SDSS data to constrain properties of Dark Energy	1.00	1.00	1.00	0.00	0.00
Post Doc	TBD	Analyze DES & SDSS data to constrain properties of Dark Energy				1.00	1.00
	Total FTE's		1.75	1.75	1.75	1.75	1.75

Salaries are escalated 4% annually starting with Year 2, estimated also reflect changes in personnel assignments.

C. Fringe and labor burden which are included in the wage pool rate

Scientific and Professional	37.25%	38%	38%	38%	38%
Post Doc	27.25%	28%	28%	28%	28%

D. Capital Equipment

E. Travel

Escalation rate of 2% used

F. Trainee/Participant Costs

G. Other Direct Costs

Materials and Supplies estimate with 2% escalation in the out years

Subcontracts based upon prior year estimate with a 2% escalation in the out years

ITD Allocation & Telecomm include computer services represent the computing and telecommunications per FTE.

The cost of Information Technology Department allocations is calculated at 3.4% of TMC.

Space includes direct cost of space used at laboratory published rates, plus a surcharge for fuel at 26.4% of the space charge and a deferred maintenance surcharge at FY10 25.8% and FY 11-14 24.4% of the direct space charge.

Organization burden is assessed on salary including fringe to pay for Physics Department administrative costs at 12.6%

I. Indirect Costs

		Year 1	Year 2	Year 3	Year 4	Year 5	
		%	%	%	%	%	
Composite rate 39.45%	BNL Material Burden	8.25	8.25	8.25	8.25	8.25	applied to travel, purchases and subcontracts
	PO Electric power	1.92	1.92	1.92	1.92	1.92	applied to direct salary plus fringe
	BNL Common G&A	24.00	24.00	24.00	24.00	24.00	applied to direct salary plus fringe, organizational burden, purchased goods, material burden, & allocated services
	BNL Traditional G&A	8.25	8.25	8.25	8.25	8.25	applied to direct salary plus fringe, organizational burden, purchased goods, and material burden
	BNL LDRD Burden	5.00	5.00	5.00	5.00	5.00	applied to direct salary plus fringe, organizational burden, purchased goods, material burden, & allocated services
	BNL IGPP rate	2.20	2.20	2.20	2.20	2.20	applied to direct salary plus fringe, organizational burden, purchased goods, material burden, & allocated services