



Cover Page for Proposal
Submitted to the
National Aeronautics and
Space Administration

NASA Proposal Number
08-CP4SMP08-0057

NASA PROCEDURE FOR HANDLING PROPOSALS

This proposal shall be used and disclosed for evaluation purposes only, and a copy of this Government notice shall be applied to any reproduction or abstract thereof. Any authorized restrictive notices that the submitter places on this proposal shall also be strictly complied with. Disclosure of this proposal for any reason outside the Government evaluation purposes shall be made only to the extent authorized by the Government.

SECTION I - Proposal Information

Principal Investigator Raymond Summers		E-mail Address rsummers@journeymuseum.org		Phone Number 605-394-6923			
Street Address (1) 222 New York St			Street Address (2)				
City Rapid City		State / Province SD		Postal Code 57701-1199		Country Code US	
Proposal Title : Journey Into Space							
Proposed Start Date 08 / 01 / 2009	Proposed End Date 07 / 31 / 2014	Total Budget 991642.00	Year 1 Budget 634005.00	Year 2 Budget 95988.00	Year 3 Budget 84448.00	Year 4 Budget 87421.00	Year 5 Budget 89780.00

SECTION II - Application Information

NASA Program Announcement Number NNH08ZNE006N		NASA Program Announcement Title Competitive Program for Science Museums and Planetariums (CP4SMP)					
For Consideration By NASA Organization (<i>the soliciting organization, or the organization to which an unsolicited proposal is submitted</i>) NASA , Headquarters , Office of Education , Integration , Informal Education							
Date Submitted 10 / 27 / 2008		Submission Method Electronic Submission Only		Grants.gov Application Identifier		Applicant Proposal Identifier CP4SMP	
Type of Application New		Predecessor Award Number		Other Federal Agencies to Which Proposal Has Been Submitted			
International Participation No		Type of International Participation					

SECTION III - Submitting Organization Information

DUNS Number 926935826	CAGE Code 39MJ2	Employer Identification Number (EIN or TIN) 363727899	Organization Type 8H				
Organization Name (Legal Name) JOURNEY MUSEUM, THE						Company Division	
Organization DBA Name JOURNEY MUSEUM, THE						Division Number	
Street Address (1) 222 NEW YORK ST			Street Address (2)				
City RAPID CITY		State / Province SD		Postal Code 577011199		Country Code USA	

SECTION IV - Proposal Point of Contact Information

Name Raymond Darwin Summers		Email Address rsummers@journeymuseum.org		Phone Number 605-394-2249	
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SECTION V - Certification and Authorization

Certification of Compliance with Applicable Executive Orders and U.S. Code

By submitting the proposal identified in the Cover Sheet/Proposal Summary in response to this Research Announcement, the Authorizing Official of the proposing organization (or the individual proposer if there is no proposing organization) as identified below:

- certifies that the statements made in this proposal are true and complete to the best of his/her knowledge;
- agrees to accept the obligations to comply with NASA award terms and conditions if an award is made as a result of this proposal; and
- confirms compliance with all provisions, rules, and stipulations set forth in the two Certifications and one Assurance contained in this NRA (namely, (i) the Assurance of Compliance with the NASA Regulations Pursuant to Nondiscrimination in Federally Assisted Programs, and (ii) Certifications, Disclosures, and Assurances Regarding Lobbying and Debarment and Suspension.

Willful provision of false information in this proposal and/or its supporting documents, or in reports required under an ensuing award, is a criminal offense (U.S. Code, Title 18, Section 1001).

Authorized Organizational Representative (AOR) Name Raymond Summers		AOR E-mail Address rsummers@journeymuseum.org		Phone Number 605-394-6923	
AOR Signature (<i>Must have AOR's original signature. Do not sign "for" AOR.</i>)				Date	

PI Name : Raymond Summers		NASA Proposal Number	
Organization Name : JOURNEY MUSEUM, THE		08-CP4SMP08-0057	
		NASA Proposal Number	
Proposal Title : Journey Into Space			
SECTION VI - Team Members			
Team Member Name Raymond Summers		E-mail Address rsummers@journeymuseum.org	Phone Number 605-394-6923
Organization Name Museum Alliance of Rapid City, Inc. dba The Journey Museum		Team Member Role PI	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Joel Halvorson		E-mail Address halvor@mplnetarium.org	Phone Number 612-823-0958
Organization Name Minnesota Planetarium Society		Team Member Role Consultant	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Gary Hargens		E-mail Address ghargens@journeymuseum.org	Phone Number 605-394-1881
Organization Name The Journey Museum		Team Member Role Other Professional	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Dan Durben		E-mail Address dandurben@bhsu.edu	Phone Number 605-642-6505
Organization Name Black Hills State University		Team Member Role Consultant	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name John Usera		E-mail Address jusera@chiesman.org	Phone Number 605-341-4311
Organization Name Chiesman Center		Team Member Role Consultant	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Patricia Schulte		E-mail Address pschulte@chiesman.org	Phone Number 605-381-5068
Organization Name Chiesman Foundation for Democracy, Inc.		Team Member Role Consultant	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Diane Melvin		E-mail Address education@journeymuseum.org	Phone Number 605-394-2535
Organization Name The Journey Museum		Team Member Role Co-I	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency		Total Funds Requested 0.00
Team Member Name Albert White Hat		E-mail Address albert.whitehat@sintegleska.edu	Phone Number 605-856-8100 x 8451
Organization Name sinte gleska university		Team Member Role Consultant	International Participation No

U.S. Government Agency Participation No	U.S. Government Agency	Total Funds Requested 0.00
Team Member Name Vladimir Sobolev	E-mail Address vladimir.sobolev@sdsmt.edu	Phone Number 605-394-1225
Organization Name South Dakota School of Mines and Technology	Team Member Role Co-I/Science PI	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency	Total Funds Requested 0.00
Team Member Name Kristi Thielen	E-mail Address kthielen@journeymuseum.org	Phone Number 605-394-4103
Organization Name Journey Museum	Team Member Role Other Professional	International Participation No
U.S. Government Agency Participation No	U.S. Government Agency	Total Funds Requested 0.00

PI Name : Raymond Summers	NASA Proposal Number
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Proposal Title : **Journey Into Space**

SECTION VII - Project Summary

Journey into Space (JIS) is designed to improve student, educator and general public understanding of earth/space science and its relationship to NASA goals and objectives, through the installation of a small permanent planetarium and engaging supporting programming at the Journey Museum. Visitors will experience immersive high-tech adventures in a projected, computer generated virtual environment that teaches as it inspires awe and curiosity. We will highlight earth and space science topics that are central to core curriculums and content standards, integrate foundational space science content with NASA developed resources, and help educators and students realize a visual, interactive, inquiry based environment for teaching and learning. JIS will provide opportunities for students to participate in science and envision themselves as scientists.

The planetarium and associated networking with area colleges, universities, K-12 school teachers, and astronomical affiliations, will bring added programming to summer science camps, provide us with teaching strategies and curriculum enhancement; provide program content for after school programs, home schooling networks, classroom presentations, special events, and teacher workshops. Networking with our regional Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) will offer added incentive and encouragement to Native American youth to graduate and pursue higher education in the STEM areas.

Addressing NASA's Science Mission Directorate (SMD) in earth science, planetary science and astrophysics, and its education goal to engage Americans in NASA's mission, a permanent planetarium with supporting STEM programming will provide an educational, high-impact, visual experience for all who visit. This will directly increase student, teacher, and visitor interest in and understanding of NASA's missions and contributions to STEM disciplines and careers. By linking and engaging our network of providers in both formal and informal education we will strengthen existing relationships, develop new ones, and offer creative STEM education in an informal learning environment.

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Proposal Title : **Journey Into Space**

SECTION VIII - Other Project Information

Proprietary Information

Is proprietary/privileged information included in this application?

Yes

International Collaboration

Does this project involve activities outside the U.S. or partnership with International Collaborators?

No

Principal Investigator	Co-Investigator	Collaborator	Equipment	Facilities
No	No	No	No	No

Explanation :

NASA Civil Servant Project Personnel

Are NASA civil servant personnel participating as team members on this project (include funded and unfunded)?

No

Fiscal Year	Fiscal Year	Fiscal Year	Fiscal Year	Fiscal Year
Number of FTEs	Number of FTEs	Number of FTEs	Number of FTEs	Number of FTEs

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SECTION VIII - Other Project Information

Environmental Impact

Does this project have an actual or potential impact on the environment?

No

Has an exemption been authorized or an environmental assessment (EA) or an environmental impact statement (EIS) been performed?

No

Environmental Impact Explanation:

Exemption/EA/EIS Explanation:

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Proposal Title : **Journey Into Space**

SECTION VIII - Other Project Information

Historical Site/Object Impact

Does this project have the potential to affect historic, archeological, or traditional cultural sites (such as Native American burial or ceremonial grounds) or historic objects (such as an historic aircraft or spacecraft)?

No

Explanation:

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SECTION IX - Program Specific Data

Question 1 : Institution Data

Answer: The Journey Museum

Question 2 : DUNS Number

Answer: 92-693-6328

Question 3 : URL

Answer:

www.journeymuseum.org

Question 4 : Categorize Institution Type:

Answers :

Natural History Museum

Question 5 : Other Institution Type

Answer:

Question 6 : Principal Investigator Data

Answer:

SUMMERS, RAYMOND, DARWIN

Question 7 : PI Official Position at Proposing Institution or Job Title

Answer:

Executive Director

Answer:

rsummers@journeymuseum.org

Question 9 : PI Telephone Number

Answer:

605-394-2249

Question 10 : PI Fax Number

Answer:

605-394-6940

Question 11 : Project Level Data

Answer:

Journey Into Space

Question 12 : Project Summary: (4000 character limit)

Answer:

Journey into Space (JIS) is designed to improve student, educator and general public understanding of earth/space science and its relationship to NASA goals and objectives, through the installation of a small permanent planetarium and engaging supporting programming at the Journey Museum. Visitors will experience immersive high-tech adventures in a projected, computer generated virtual environment that teaches as it inspires awe and curiosity. We will highlight earth and space science topics that are central to core curriculums and content standards, integrate foundational space science content with NASA developed resources, and help educators and students realize a visual, interactive, inquiry based environment for teaching and learning. JIS will provide opportunities for students to participate in science and envision themselves as scientists.

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Addressing NASA's Science Mission Directorate (SMD) in earth science, planetary science and astrophysics, and its education goal to engage Americans in NASA's mission, a permanent planetarium with supporting STEM programming will provide an educational, high-impact, visual experience for all who visit. This will directly increase student, teacher, and visitor interest in and understanding of NASA's missions and contributions to STEM disciplines and careers. By linking and engaging our network of providers in both formal and informal education we will strengthen existing relationships, develop new ones, and offer creative STEM education in an informal learning environment.

Question 13 : Technical Content Area

Answers :

Earth Science

Space Exploration

Space Science

Question 14 : List the Primary Affiliated NASA Mission Directorate

Answer: SMD

Question 15 : Indicate status of any planned federal partnership.

Answer: No plans at this time

Question 16 : List one or more NASA Center the project plans to approach or already partners with for this solicitation:

Answers :

Question 17 : List Any other NASA partners:(Specify)

Answer:

None

Question 18 : List any other federal entity the proposed project intends to involve:

Answer:

None

Question 19 : List any non-federal institutional partners (e.g. local schools, 4-H. etc.)

Answer:

None

Question 20 : If known, list individuals for whom direct labor or consultant funding may be requested. Include name, institution, city, state or country, and a description of the role in five words or less (e.g. exhibit developer).

Answer:

Raymond D. Summers The Journey Museum Rapid City, SD PI, overall project management and leadership.
Diane Melvin The Journey Museum Rapid City, SD Co-PI, specific project management
Dr. Vladimir Sobolev SD School of Mines and Technology Rapid City, SD Co-PI Science, scientific content
Gary Hargens The Journey Museum Rapid City, SD Museum technical facility advisor
Peg Christie The Journey Museum Rapid City, SD Financial reporting/accountant
Kristi Thielen The Journey Museum Rapid City, SD Public Programs design and outreach
Dr. John Usera Chiesman Center for Democracy Rapid City, SD Project Evaluator
Pat Schulte IELE Rapid City, SD Project Evaluator
Joel Halvorson MN Planetarium Society Minneapolis, MN Planetarium program development
Dr. Dan Durben Black Hills State University Spearfish, SD University Astronomy Professor
Mark Farrand Rapid City School District Rapid City, SD High School Astronomy Teacher
Nancy Anderson-Smith SD School of Mines and Technology Rapid City, SD Education outreach coordinator
Dr. Ben Sayler Center for Advancement of Math and Science Education Spearfish, SD State-wide STEM outreach
Albert White Hat, Sr. Sinte Gleska University Mission, SD Lakota Studies Assoc. Professor
Thomas Durkin SD Space Grant Consortium Rapid City, SD Space/Earth Science networking
Stacy Phelps SD GEAR UP Kyle, SD Native American Youth

Question 21 : List the primary anticipated contribution to a NASA Education Outcome. Choose from the following:

Answer: Outcome 3: Build strategic partnerships between STEM formal/informal educators to promote STEM literacy and awareness of NASA's mission.

Question 22 : List any secondary contribution from among NASA Education's Three Outcomes.

Answer: Outcome 2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty.

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Proposal Title : Journey Into Space						
SECTION X - Budget						
Cumulative Budget						
Budget Cost Category	Funds Requested (\$)					
	Year 1 (\$)	Year 2 (\$)	Year 3 (\$)	Year 4 (\$)	Year 5 (\$)	Total Project (\$)
A. Direct Labor - Key Personnel	30709.00	26663.00	23678.00	24627.00	24939.00	130616.00
B. Direct Labor - Other Personnel	42674.00	31291.00	32542.00	33843.00	35197.00	175547.00
Total Number Other Personnel	4	3	3	3	3	16
Total Direct Labor Costs (A+B)	73383.00	57954.00	56220.00	58470.00	60136.00	306163.00
C. Direct Costs - Equipment	39498.00	0.00	0.00	0.00	0.00	39498.00
D. Direct Costs - Travel	5192.00	5392.00	4410.00	4630.00	4865.00	24489.00
Domestic Travel	5192.00	5392.00	4410.00	4630.00	4865.00	24489.00
Foreign Travel	0.00	0.00	0.00	0.00	0.00	0.00
E. Direct Costs - Participant/Trainee Support Costs	6000.00	6000.00	6000.00	6000.00	6000.00	30000.00
Tuition/Fees/Health Insurance	0.00	0.00	0.00	0.00	0.00	0.00
Stipends	6000.00	6000.00	6000.00	6000.00	6000.00	30000.00
Travel	0.00	0.00	0.00	0.00	0.00	0.00
Subsistence	0.00	0.00	0.00	0.00	0.00	0.00
Other	0.00	0.00	0.00	0.00	0.00	0.00
Number of Participants/Trainees	20	20	20	20	20	100
F. Other Direct Costs	504488.00	21026.00	11977.00	12247.00	12462.00	562200.00
Materials and Supplies	4125.00	4000.00	4000.00	4000.00	4000.00	20125.00
Publication Costs	0.00	0.00	0.00	0.00	0.00	0.00
Consultant Services	8300.00	8300.00	300.00	300.00	300.00	17500.00
ADP/Computer Services	0.00	0.00	0.00	0.00	0.00	0.00
Subawards/Consortium/Contractual Costs	0.00	0.00	0.00	0.00	0.00	0.00
Equipment or Facility Rental/User Fees	0.00	0.00	0.00	0.00	0.00	0.00
Alterations and Renovations	442766.00	0.00	0.00	0.00	0.00	442766.00
Other	49297.00	8726.00	7677.00	7947.00	8162.00	81809.00
G. Total Direct Costs (A+B+C+D+E+F)	628561.00	90372.00	78607.00	81347.00	83463.00	962350.00
H. Indirect Costs	5444.00	5616.00	5841.00	6074.00	6317.00	29292.00
I. Total Direct and Indirect Costs (G+H)	634005.00	95988.00	84448.00	87421.00	89780.00	991642.00
J. Fee	0.00	0.00	0.00	0.00	0.00	0.00
K. Total Cost (I+J)	634005.00	95988.00	84448.00	87421.00	89780.00	991642.00
Total Cumulative Budget						991642.00

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SECTION X - Budget

Start Date : 08 / 01 / 2009	End Date : 07 / 31 / 2010	Budget Type : Project	Budget Period : 1
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A. Direct Labor - Key Personnel

Name	Project Role	Base Salary (\$)	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)
Summers, Raymond	PI	67310.00	.25			16827.00	569.00	17396.00
Melvin, Diane	CO-I	37729.00	.33			12828.00	485.00	13313.00
Total Key Personnel Costs								30709.00

B. Direct Labor - Other Personnel

Number of Personnel	Project Role	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)	
1	Secretarial / Clerical	.25			8578.00	296.00	8874.00	
1	Facility Manager	.25			11906.00	432.00	12338.00	
1	Education Specialist	.25			7052.00	100.00	7152.00	
1	Part-time Education Staff Member	.5			14110.00	200.00	14310.00	
4	Total Number Other Personnel	Total Other Personnel Costs						42674.00
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A+B)								73383.00

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SECTION X - Budget

Start Date : 08 / 01 / 2009	End Date : 07 / 31 / 2010	Budget Type : Project	Budget Period : 1
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C. Direct Costs - Equipment

Item No.	Equipment Item Description	Funds Requested (\$)
1	Technology - SX3 projector stand	530.00
2	Technology - SX3, LCOS 1400x1050 4000 lumen projector	29320.00
3	Technology - Eluminati Standard IG hardware/video player	3250.00
4	Technology installation/training, 2 days onsite, 20 hrs remote	5000.00
5	Technology audio Blue Sky MediaDesk 5.1	1398.00
Total Equipment Costs		39498.00

D. Direct Costs - Travel

	Funds Requested (\$)
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)	5192.00
2. Foreign Travel	0.00
Total Travel Costs	5192.00

E. Direct Costs - Participant/Trainee Support Costs

	Funds Requested (\$)
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	6000.00
3. Travel	0.00
4. Subsistence	0.00
Number of Participants/Trainees: 20	Total Participant/Trainee Support Costs 6000.00

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SECTION X - Budget			
Start Date : 08 / 01 / 2009	End Date : 07 / 31 / 2010	Budget Type : Project	Budget Period : 1
F. Other Direct Costs			
			Funds Requested (\$)
1. Materials and Supplies			4125.00
2. Publication Costs			0.00
3. Consultant Services			8300.00
4. ADP/Computer Services			0.00
5. Subawards/Consortium/Contractual Costs			0.00
6. Equipment or Facility Rental/User Fees			0.00
7. Alterations and Renovations			442766.00
8. Other: Uniview Licensing/support - 5 year, 20% discount rate			15600.00
9. Other: Uniview, contains AMNH/NASA digital universe			22500.00
10. Other: Independent Evaluation Consulting Services			11197.00
Total Other Direct Costs			504488.00
G. Total Direct Costs			
			Funds Requested (\$)
Total Direct Costs (A+B+C+D+E+F)			628561.00
H. Indirect Costs			
	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)
Facility infrastructure overhead (% of sq ft)	4.00	135000.00	5444.00
Cognizant Federal Agency: None	Total Indirect Costs		5444.00
I. Direct and Indirect Costs			
			Funds Requested (\$)
Total Direct and Indirect Costs (G+H)			634005.00
J. Fee			
			Funds Requested (\$)
Fee			0.00
K. Total Cost			
			Funds Requested (\$)
Total Cost with Fee (I+J)			634005.00

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SECTION X - Budget									
Start Date : 08 / 01 / 2010		End Date : 07 / 31 / 2011		Budget Type : Project		Budget Period : 2			
A. Direct Labor - Key Personnel									
Name	Project Role	Base Salary (\$)	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)	
Summers, Raymond	PI	69329.00	.1			6933.00	57.00	6990.00	
Melvin, Diane	CO-I	38861.00	.5			19430.00	243.00	19673.00	
Total Key Personnel Costs								26663.00	
B. Direct Labor - Other Personnel									
Number of Personnel	Project Role	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)		
1	Secretarial / Clerical	.25			8661.00	308.00	8969.00		
1	Part-time Education Staff Member	.5			14674.00	208.00	14882.00		
1	Educatio Specialist	.25			7336.00	104.00	7440.00		
3	Total Number Other Personnel	Total Other Personnel Costs					31291.00		
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A+B)								57954.00	

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SECTION X - Budget

Start Date : 08 / 01 / 2010	End Date : 07 / 31 / 2011	Budget Type : Project	Budget Period : 2
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C. Direct Costs - Equipment

Item No.	Equipment Item Description	Funds Requested (\$)
Total Equipment Costs		0.00

D. Direct Costs - Travel

	Funds Requested (\$)
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)	5392.00
2. Foreign Travel	0.00
Total Travel Costs	5392.00

E. Direct Costs - Participant/Trainee Support Costs

	Funds Requested (\$)
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	6000.00
3. Travel	0.00
4. Subsistence	0.00
Number of Participants/Trainees: 20	Total Participant/Trainee Support Costs
	6000.00

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Start Date : 08 / 01 / 2010	End Date : 07 / 31 / 2011	Budget Type : Project	Budget Period : 2
F. Other Direct Costs			
			Funds Requested (\$)
1. Materials and Supplies			4000.00
2. Publication Costs			0.00
3. Consultant Services			8300.00
4. ADP/Computer Services			0.00
5. Subawards/Consortium/Contractual Costs			0.00
6. Equipment or Facility Rental/User Fees			0.00
7. Alterations and Renovations			0.00
8. Other: Independent Evaluation Consulting Services			8726.00
Total Other Direct Costs			21026.00
G. Total Direct Costs			
			Funds Requested (\$)
Total Direct Costs (A+B+C+D+E+F)			90372.00
H. Indirect Costs			
	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)
Facility infrastructure overhead (% of sq ft)	4.00	140400.00	5616.00
Cognizant Federal Agency: None	Total Indirect Costs		5616.00
I. Direct and Indirect Costs			
			Funds Requested (\$)
Total Direct and Indirect Costs (G+H)			95988.00
J. Fee			
			Funds Requested (\$)
Fee			0.00
K. Total Cost			
			Funds Requested (\$)
Total Cost with Fee (I+J)			95988.00

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SECTION X - Budget									
Start Date : 08 / 01 / 2011		End Date : 07 / 31 / 2012		Budget Type : Project		Budget Period : 3			
A. Direct Labor - Key Personnel									
Name	Project Role	Base Salary (\$)	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)	
Melvin, Diane	CO-I	40415.00	.4			16166.00	243.00	16409.00	
Summers, Raymond	PI	72101.00	.1			7210.00	59.00	7269.00	
Total Key Personnel Costs								23678.00	
B. Direct Labor - Other Personnel									
Number of Personnel	Project Role	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)		
1	Secretarial / Clerical	.25			9007.00	320.00	9327.00		
1	Part-time Education Staff Member	.5			15261.00	216.00	15477.00		
1	Education Specialist	.25			7630.00	108.00	7738.00		
3	Total Number Other Personnel	Total Other Personnel Costs					32542.00		
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A+B)								56220.00	

PI Name : Raymond Summers	NASA Proposal Number
Organization Name : JOURNEY MUSEUM, THE	08-CP4SMP08-0057
	NASA Proposal Number

Proposal Title : **Journey Into Space**

SECTION X - Budget

Start Date : 08 / 01 / 2011	End Date : 07 / 31 / 2012	Budget Type : Project	Budget Period : 3
---------------------------------------	-------------------------------------	---------------------------------	-----------------------------

C. Direct Costs - Equipment

Item No.	Equipment Item Description	Funds Requested (\$)
	Total Equipment Costs	0.00

D. Direct Costs - Travel

	Funds Requested (\$)
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)	4410.00
2. Foreign Travel	0.00
	Total Travel Costs
	4410.00

E. Direct Costs - Participant/Trainee Support Costs

	Funds Requested (\$)
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	6000.00
3. Travel	0.00
4. Subsistence	0.00
Number of Participants/Trainees: 20	Total Participant/Trainee Support Costs
	6000.00

PI Name : Raymond Summers		NASA Proposal Number	
Organization Name : JOURNEY MUSEUM, THE		08-CP4SMP08-0057	
		NASA Proposal Number	
Proposal Title : Journey Into Space			
SECTION X - Budget			
Start Date : 08 / 01 / 2011	End Date : 07 / 31 / 2012	Budget Type : Project	Budget Period : 3
F. Other Direct Costs			
			Funds Requested (\$)
1. Materials and Supplies			4000.00
2. Publication Costs			0.00
3. Consultant Services			300.00
4. ADP/Computer Services			0.00
5. Subawards/Consortium/Contractual Costs			0.00
6. Equipment or Facility Rental/User Fees			0.00
7. Alterations and Renovations			0.00
8. Other: Independent Evaluation Consulting Services			7677.00
Total Other Direct Costs			11977.00
G. Total Direct Costs			
			Funds Requested (\$)
Total Direct Costs (A+B+C+D+E+F)			78607.00
H. Indirect Costs			
	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)
Facility infrastructure overhead (% of sq ft)	4.00	146016.00	5841.00
Cognizant Federal Agency: None	Total Indirect Costs		5841.00
I. Direct and Indirect Costs			
			Funds Requested (\$)
Total Direct and Indirect Costs (G+H)			84448.00
J. Fee			
			Funds Requested (\$)
Fee			0.00
K. Total Cost			
			Funds Requested (\$)
Total Cost with Fee (I+J)			84448.00

PI Name : Raymond Summers						NASA Proposal Number			
Organization Name : JOURNEY MUSEUM, THE						08-CP4SMP08-0057			
Proposal Title : Journey Into Space						NASA Proposal Number			
SECTION X - Budget									
Start Date : 08 / 01 / 2012		End Date : 07 / 31 / 2013		Budget Type : Project		Budget Period : 4			
A. Direct Labor - Key Personnel									
Name	Project Role	Base Salary (\$)	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)	
Summers, Raymond	PI	74985.00	.1			7500.00	61.00	7561.00	
Melvin, Diane	CO-I	40415.00	.4			16813.00	253.00	17066.00	
Total Key Personnel Costs								24627.00	
B. Direct Labor - Other Personnel									
Number of Personnel	Project Role	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)		
1	Secretarial / Clerical	.25			9367.00	333.00	9700.00		
1	Part-time Education Staff Member	.5			15871.00	225.00	16096.00		
1	Education Specialist	.25			7935.00	112.00	8047.00		
3	Total Number Other Personnel	Total Other Personnel Costs					33843.00		
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A+B)								58470.00	

PI Name : Raymond Summers		NASA Proposal Number	
Organization Name : JOURNEY MUSEUM, THE		08-CP4SMP08-0057	
		NASA Proposal Number	
Proposal Title : Journey Into Space			
SECTION X - Budget			
Start Date : 08 / 01 / 2012	End Date : 07 / 31 / 2013	Budget Type : Project	Budget Period : 4
C. Direct Costs - Equipment			
Item No.	Equipment Item Description	Funds Requested (\$)	
	Total Equipment Costs	0.00	
D. Direct Costs - Travel			
		Funds Requested (\$)	
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)		4630.00	
2. Foreign Travel		0.00	
	Total Travel Costs	4630.00	
E. Direct Costs - Participant/Trainee Support Costs			
		Funds Requested (\$)	
1. Tuition/Fees/Health Insurance		0.00	
2. Stipends		6000.00	
3. Travel		0.00	
4. Subsistence		0.00	
Number of Participants/Trainees: 20		Total Participant/Trainee Support Costs	6000.00

PI Name : Raymond Summers		NASA Proposal Number	
Organization Name : JOURNEY MUSEUM, THE		08-CP4SMP08-0057	
		NASA Proposal Number	
Proposal Title : Journey Into Space			
SECTION X - Budget			
Start Date : 08 / 01 / 2012	End Date : 07 / 31 / 2013	Budget Type : Project	Budget Period : 4
F. Other Direct Costs			
			Funds Requested (\$)
1. Materials and Supplies			4000.00
2. Publication Costs			0.00
3. Consultant Services			300.00
4. ADP/Computer Services			0.00
5. Subawards/Consortium/Contractual Costs			0.00
6. Equipment or Facility Rental/User Fees			0.00
7. Alterations and Renovations			0.00
8. Other: Independent Evaluation Consulting Services			7947.00
Total Other Direct Costs			12247.00
G. Total Direct Costs			
			Funds Requested (\$)
Total Direct Costs (A+B+C+D+E+F)			81347.00
H. Indirect Costs			
	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)
Facility infrastructure overhead (% of sq ft)	4.00	151857.00	6074.00
Cognizant Federal Agency: None	Total Indirect Costs		6074.00
I. Direct and Indirect Costs			
			Funds Requested (\$)
Total Direct and Indirect Costs (G+H)			87421.00
J. Fee			
			Funds Requested (\$)
Fee			0.00
K. Total Cost			
			Funds Requested (\$)
Total Cost with Fee (I+J)			87421.00

PI Name : Raymond Summers						NASA Proposal Number			
Organization Name : JOURNEY MUSEUM, THE						08-CP4SMP08-0057			
Proposal Title : Journey Into Space						NASA Proposal Number			
SECTION X - Budget									
Start Date : 08 / 01 / 2013		End Date : 07 / 31 / 2014		Budget Type : Project		Budget Period : 5			
A. Direct Labor - Key Personnel									
Name		Project Role	Base Salary (\$)	Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)
Summers, Raymond		PI	77984.00	.1			7800.00	63.00	7863.00
Melvin, Diane		CO-I	42032.00	.4			16813.00	263.00	17076.00
Total Key Personnel Costs								24939.00	
B. Direct Labor - Other Personnel									
Number of Personnel	Project Role		Cal. Months	Acad. Months	Summ. Months	Requested Salary (\$)	Fringe Benefits (\$)	Funds Requested (\$)	
1	Secretarial / Clerical		.25			9742.00	346.00	10088.00	
1	Part-time Education Staff Member		.5			16506.00	234.00	16740.00	
1	Education Specialist		.25			8253.00	116.00	8369.00	
3	Total Number Other Personnel		Total Other Personnel Costs					35197.00	
Total Direct Labor Costs (Salary, Wages, Fringe Benefits) (A+B)								60136.00	

PI Name : Raymond Summers	NASA Proposal Number
Organization Name : JOURNEY MUSEUM, THE	08-CP4SMP08-0057
	NASA Proposal Number

Proposal Title : **Journey Into Space**

SECTION X - Budget

Start Date : 08 / 01 / 2013	End Date : 07 / 31 / 2014	Budget Type : Project	Budget Period : 5
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C. Direct Costs - Equipment

Item No.	Equipment Item Description	Funds Requested (\$)
	Total Equipment Costs	0.00

D. Direct Costs - Travel

	Funds Requested (\$)
1. Domestic Travel (Including Canada, Mexico, and U.S. Possessions)	4865.00
2. Foreign Travel	0.00
	Total Travel Costs
	4865.00

E. Direct Costs - Participant/Trainee Support Costs

	Funds Requested (\$)
1. Tuition/Fees/Health Insurance	0.00
2. Stipends	6000.00
3. Travel	0.00
4. Subsistence	0.00
Number of Participants/Trainees: 20	Total Participant/Trainee Support Costs
	6000.00

PI Name : Raymond Summers		NASA Proposal Number	
Organization Name : JOURNEY MUSEUM, THE		08-CP4SMP08-0057	
		NASA Proposal Number	
Proposal Title : Journey Into Space			
SECTION X - Budget			
Start Date : 08 / 01 / 2013	End Date : 07 / 31 / 2014	Budget Type : Project	Budget Period : 5
F. Other Direct Costs			
			Funds Requested (\$)
1. Materials and Supplies			4000.00
2. Publication Costs			0.00
3. Consultant Services			300.00
4. ADP/Computer Services			0.00
5. Subawards/Consortium/Contractual Costs			0.00
6. Equipment or Facility Rental/User Fees			0.00
7. Alterations and Renovations			0.00
8. Other: Independent Evaluation Consulting Services			8162.00
Total Other Direct Costs			12462.00
G. Total Direct Costs			
			Funds Requested (\$)
Total Direct Costs (A+B+C+D+E+F)			83463.00
H. Indirect Costs			
	Indirect Cost Rate (%)	Indirect Cost Base (\$)	Funds Requested (\$)
Facility infrastructure overhead (% of sq ft)	4.00	157931.00	6317.00
Cognizant Federal Agency: None	Total Indirect Costs		6317.00
I. Direct and Indirect Costs			
			Funds Requested (\$)
Total Direct and Indirect Costs (G+H)			89780.00
J. Fee			
			Funds Requested (\$)
Fee			0.00
K. Total Cost			
			Funds Requested (\$)
Total Cost with Fee (I+J)			89780.00

**NASA Office of Education
Competitive Program for Science Museums and Planetariums (CP4SMP)**

Proposal Summary/Abstract

Journey into Space (JIS) is designed to improve student, educator and general public understanding of earth/space science and its relationship to NASA goals and objectives, through the installation of a small permanent planetarium and engaging supporting programming at the Journey Museum. Visitors will experience immersive high-tech adventures in a projected, computer generated virtual environment that teaches as it inspires awe and curiosity. We will highlight earth and space science topics that are central to core curriculums and content standards, integrate foundational space science content with NASA developed resources, and help educators and students realize a visual, interactive, inquiry based environment for teaching and learning. **JIS** will provide opportunities for students to participate in science and envision themselves as scientists.

The planetarium and associated networking with area colleges, universities, K-12 school teachers, and astronomical affiliations, will bring added programming to summer science camps, provide us with teaching strategies and curriculum enhancement; provide program content for after school programs, home schooling networks, classroom presentations, special events, and teacher workshops. Networking with our regional Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) will offer added incentive and encouragement to Native American youth to graduate and pursue higher education in the STEM areas.

Addressing NASA's Science Mission Directorate (SMD) in earth science, planetary science and astrophysics, and its education goal to engage Americans in NASA's mission, a permanent planetarium with supporting STEM programming will provide an educational, high-impact, visual experience for all who visit. This will directly increase student, teacher, and visitor interest in and understanding of NASA's missions and contributions to STEM disciplines and careers. By linking and engaging our network of providers in both formal and informal education we will strengthen existing relationships, develop new ones, and offer creative STEM education in an informal learning environment.

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Develop and Implement Planetarium Academy	7
Manage and evaluate the JIS program for sustainability	8
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Program Purpose

Journey into Space (JIS) will contribute measurably to NASA's education goal: engaging Americans in NASA's mission by building strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission. Through the installation of a small permanent planetarium and engaging supporting programming at the Journey Museum, visitors will experience immersive high-tech adventures in a projected, computer generated, virtual environment that teaches as it inspires awe and curiosity.

We will highlight earth and space science topics that are central to core earth/space science school curriculums and earth/space science state and national content standards, integrate foundational space science content with NASA developed resources, and help educators and students realize a visual, interactive, inquiry based environment for teaching and learning. JIS will provide opportunities for students to participate in science and envision themselves as scientists.

The planetarium and associated collaboration with area colleges, universities, K-12 school teachers, and astronomical affiliations, will bring added dimension and programming to college summer science camps for kids, provide us with teaching strategies and curriculum enhancement; provide program content for after school programs, home schooling networks, classroom and community presentations, special events, and teacher workshops. Networking with our regional Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) will offer added incentive and encouragement to Native American youth to graduate and pursue higher education in the STEM areas.

Need, Opportunity, and Community Interest

South Dakota ranks 37 in the nation for expenditure per pupil. Schools lack the resources to provide adequate materials and tools that broaden and deepen earth and space science education. Access to a planetarium in Rapid City will increase student and public knowledge, interest, and awareness in STEM areas.

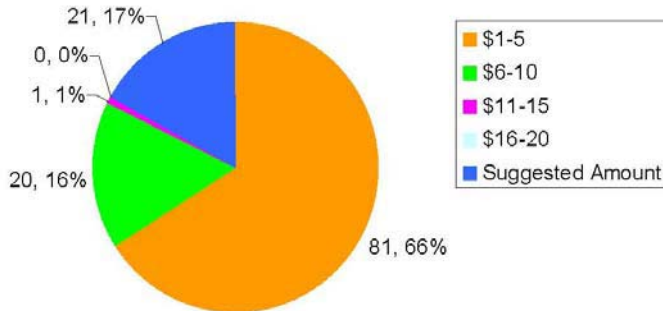
On July 24 and 25, with the generosity of private donations, the Journey Museum brought the Minnesota Planetarium Society's portable planetarium to Rapid City, SD for public viewing. Fifteen minute programs were presented by the Program Director of the MN Planetarium Society using the *Univew-scalable universe* computer data base. Fifteen presentations were given to approximately 450 individuals taking them on a voyage from the subatomic realm to the edge of the known universe while observing the planets along the way.

A special invitation was sent to potential funders for an evening program on the 24th. Programs continued on the 25th at the Journey Museum until 4:00 pm, then the dome and computer system were transported to a downtown location to be part of the city's Summer Nights on Seventh Festivities. Bringing the *ExploraDome* to the museum and the Rapid City community was the first step in determining the feasibility of incorporating a planetarium into the museum. Public response to the visiting planetarium was gauged to see what kind of civic support a small museum planetarium might receive. Surveys were completed and tallied (see charts on page 2). The Journey Museum Board of Directors supports the decision to seek funding for a permanent planetarium with a robust education component.

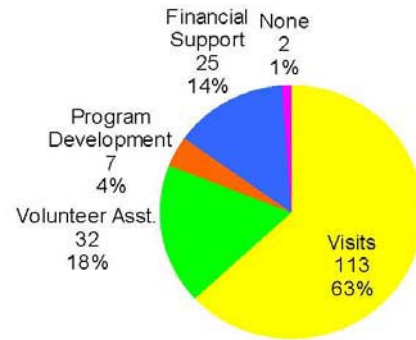
The Journey Museum is the region's education venue that serves as a forum to preserve and explore the heritage of the cultures of the Black Hills region and the knowledge of its natural

environment so residents and visitors can understand the values of our past, enrich our present, and meet the challenges of the future.

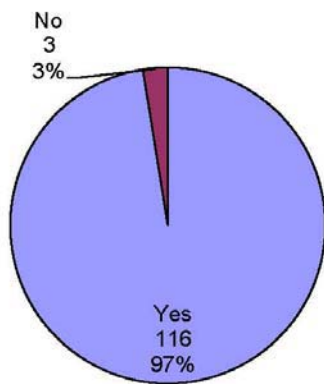
ExploraDome Survey Results



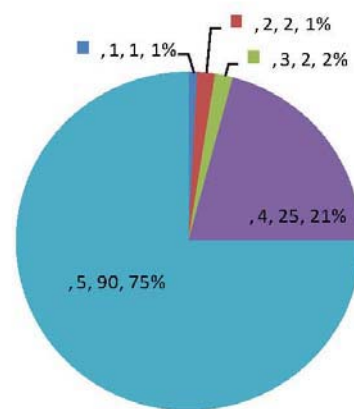
What would you be willing to pay for entrance to the planetarium, if its admission was separate?



If the Journey Museum had a planetarium within its facility, how would you be willing to support?



The Journey Museum would periodically present special programs in the planetarium, would you be willing to attend these programs throughout the year?

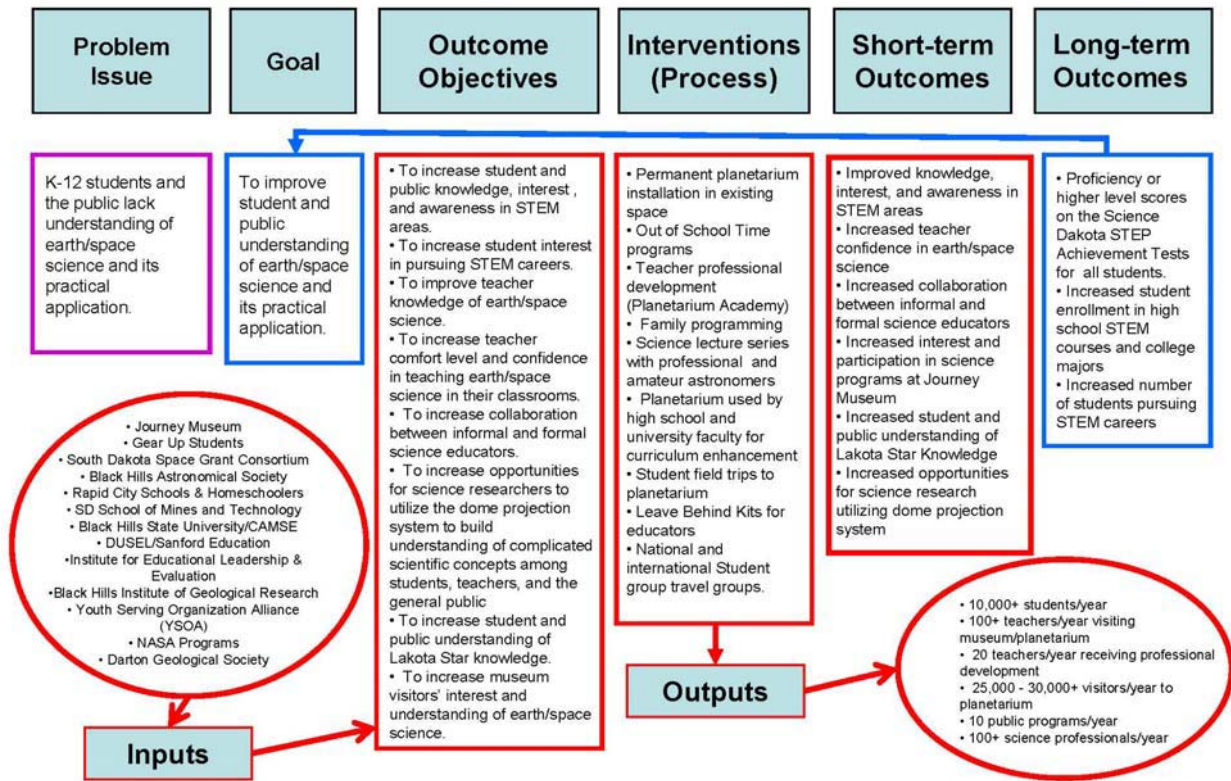


How would you rate your experience in the ExploraDome today (Rate 1 – 5, where 5 is the highest)?

Program Goals and Objectives

1. Install a permanent planetarium, create a programming committee with our staff support team and add a museum education department staff member that will make it possible to increase and provide quality earth/space science programming.
2. Increase the museum’s contribution to its community by increasing the quantity and quality of science programming to youth and adult audiences through strengthened partnerships with schools, researchers, and informal education providers.
3. Develop and implement an instructor planetarium/science training program (Planetarium Academy) to build relationships with trained teachers and their schools and to make the museum planetarium accessible to the broader school community.
4. Manage and evaluate the first three components for **JIS** sustainability.

Journey Museum
“Journey Into Space” Logic Model



27 October 2008

1.0 Install a permanent planetarium

We have a room in the museum called the *Star Room*. It is the beginning of our museum tour and depicts the beginning of time in the Black Hills. It is a darkened space with glittering fiber optic lights in the walls and ceiling. An audio loop plays two stories: one of a scientific explanation of the big bang theory, and the other of the Lakota creation story. Middle and high school, astronomy and science classes, come to sit, contemplate, and discuss various earth/space science topics in this 1,650 sq. ft. room.

The initial phases of the five-year grant initiative (years one and two) will involve increasing and reconfiguring this existing space to 1,974 sq. ft. for a permanent planetarium and creating a programming committee for the museum education department. The design and construction management of the permanent dome will be by TSP, a local architectural firm which designed and managed the construction of the Journey Museum. TSP is part of our Buildings and Grounds Committee.

1.1 Train and Create a Programming Committee

Hardware platform and digital universe equipment will be ordered, training on the equipment will begin for staff and programming partners using our large flat screen (22 ft. x 28 ft.) in the museum theater while the planetarium is under construction. Our Education Director will meet with the programming committee comprised of our support staff, team members, and the museum's Education Specialist. The program committee will meet once a month to assign and review plans, program content, and time schedules. One part-time education staff person will be

hired to assist with earth/space science programs and the paperwork involved. This person will help with presentations, coordination and communication, forms, and data entry for schools, groups, clubs, and other entities requesting earth/space science programming and time in the planetarium.

1.2 JIS Program Participants

Individual	Institution and Qualifications	Relevance to JIS Program
Raymond Summers– Principal Investigator	Executive Director, The Journey Museum Rapid City, SD	Oversees all aspects of the program
Diane Melvin– Co-I	Education Director, The Journey Museum Rapid City, SD	Chairs programming committee and collaborates with committee, instructors, and in-house staff on program needs
Dr. Valadimir Sobolev- Co-I/ Science PI	Department of Physics, Astronomy instructor, Professor, Associate Professor, South Dakota School of Mines and Technology Rapid City, SD	Co-Chair of programming committee and oversees development and content of our STEM programs
Joel Halvorson- Consultant	Director, Minnesota Planetarium Society, Minneapolis, MN	Will Translate traditional Lakota Star Knowledge and earth/space science into a state of the art, digital planetarium program
Dan Durben-Consultant	Science Department, Professor, Black Hills State University, Spearfish, SD	Collaborates with Co-I/ Science PI to oversee and develop and content of our STEM programs
Dr. John Usera- Consultant	Principal Researcher and Evaluator, Institute for Educational Leadership and Evaluation (IELE) CEO, Chiesman Center for Democracy, Inc. Sioux Falls, SD	Evaluator/Advisor
Patricia Schulte- Consultant	Director, Chiesman Center for Democracy, Inc. Rapid City, SD	Evaluator/Advisor
Albert White Hat Sr.-Consultant	Spiritual leader and author, Lakota Studies and Language Program Director, Sinte Gleska University, Mission, SD	Program advisor for the development of our Lakota Star Knowledge dome presentations

Individual	Institution and Qualifications	Relevance to JIS Program
Gary Hargens-Other Professional	Facility Manager, The Journey Museum, Rapid City, SD	To work with planetarium contractor, maintain and repair museum building systems, and manage the museum Visitor Services Dept
Kristi Thielen-Other Professional	Education Specialist, The Journey Museum, Rapid City, SD	Copy writing, information to media, interviews, Out of School Time program design, working closely with Education Director and part-time education dept. person TBD
TBD	Part-time, The Journey Museum Education Dept. Staff	Assist with earth/space science programs and the paperwork involved
Nancy Anderson-Smith-Collaborator	Director, Educational Programs and Professional Conferences, South Dakota School of Mines and Technology, Rapid City, SD	Advisor for community science lecture series, conference, and outreach program direction
Tom Durkin-Collaborator	Deputy Director, South Dakota Space Grant Consortium, Rapid City, SD	Advisor for community science lecture series, conference, and outreach program direction
Dr. Ben Sayler-Collaborator	Director, Center for the Advancement of Mathematics and Science Education, BHS University, Spearfish, SD Director, Education and Outreach, Sanford Underground Laboratory, Lead, SD	Develop STEM content, generate interest among statewide teacher and school district audiences, connect physics and astronomy faculty to the facility, and serve on programming committee Reference the underground lab and JIS program efforts, and support JIS education and outreach efforts, especially those that would tie to the planetarium
Mark Farrand-Collaborator	Geology, Astronomy instructor, Central High School, Rapid City, SD	Will help design and align K-12 programs with state content standards and to integrate foundational space science content with NASA developed resources
Stacy Phelps-Collaborator	Director, South Dakota <i>GEAR UP</i> Program	Will add the JIS Planetarium Academy to his staff development program and offer students expanded programming in astronomy, earth science, and atmospheric science through collaboration with the Journey Museum, the planetarium and proposed curriculum

2.0 Add quantity and quality of earth/space science programming

Our Museum currently sponsors NASA teacher training robotic workshops, hosts the Black Hills Astronomical Society's monthly meetings, has teacher developed traveling classroom enhancement materials, and is an affiliate of South Dakota Space Grant Consortium with a staff member on the management team. We have hosted events with NASA speakers, sponsored presentations from the Badlands Observatory via on-line connection to its 26" telescope from our theater, and provided exhibits and science demonstrations for Women in Science. Our children and family programs focus on grades K-5. Family Fun Days are every third Sunday of the month, classes for K-2 and 3-5 graders are held in the summer and on weekends during the school year. Programming topics include earth/space science.

We will add a Lakota Star Knowledge planetarium program to increase student and public understanding of Lakota Star Knowledge, a public science lecture series to increase museum visitors' interest and understanding of earth/space science, invite university faculty and researchers to the planetarium for curriculum enhancement and understanding of complicated scientific concepts. We will provide opportunities for teachers and researchers to improve their level of teaching and understanding in STEM areas through student/faculty field trips and training workshops.

We will increase the number of earth/science programs for families, add classes for grades 6-12, and add an Out of School Time program twice a month to be conducted at a school or in the museum depending on need.

In collaboration with our professional consultants, our **JIS** initiative will add quality programs with a highly needed interactive, visual component to earth/space science curriculum. Quality earth/space science programs will increase student and public knowledge, interest, and awareness in STEM areas and increase student interest in pursuing STEM careers.

3.0 Develop and implement an instructor planetarium/science training program (Planetarium Academy)

Computer hardware and software for the planetarium will be ordered and training for staff and programming partners will be given by the distribution company *The Elumenati*. This includes two days on site for installation and training with additional remote training available after installation. The programming committee will outline a program for an instructor planetarium/space science training program. This teacher professional development workshop will offer instructors one graduate credit or state education renewal credit for 15 hours of training. This workshop will provide teacher/instructor hands-on training with the planetarium hardware/software and include foundational earth/space science content with NASA developed resources. Our objectives will be to improve instructor knowledge of earth/space science, increase comfort level and confidence in teaching earth/space science and to increase collaboration between informal and formal science educators. Those individuals completing the workshop will receive a stipend and be able use the museum planetarium to teach their classes or groups. This workshop will build relationships with trained teachers and their schools and make the museum planetarium accessible to the broader school community. Trained classroom teachers who bring classes to the museum planetarium will be provided a "Leave Behind Kit" for their classroom/school. This kit will be a backpack that contains a CD about astronomy, a book on Lakota star knowledge, a DVD about a topic on earth/space science relevant to grade level

and area of study, and a teacher's guide with hands-on activities from NASA's Office of Human Resources and Education, Education Division.

4.1 Manage and evaluate the JIS program for sustainability

Overview

The external evaluation will be conducted by a third-party evaluator: the Institute for Educational Leadership and Evaluation[®] (IELE) in Rapid City, SD. The IELE provides independent program evaluation and research for organizations and projects involved in social, educational, and personal betterment. Dr. John J. Usera will serve as the principal evaluator for the Journey into Space (JIS) Project. Dr. Usera is currently the CEO of the Chiesman Center for Democracy and serves as a principal researcher and evaluator for the IELE. He also holds the rank of Associate Professor of Educational Research and Curriculum Theory at Black Hills State University in Spearfish, SD and Visiting Professor of Research at Phillips Graduate Institute in Encino, CA. He holds his doctorate in analytical chemistry from Kansas State University and has extensive experience in program and curriculum development, strategic planning, program evaluation, institutional research, and education research. Dr. Usera is an expert consultant for the U.S. Department of Health and Human Services, Office of Population Affairs; South Dakota Department of Education; and U.S. Department of Interior, Bureau of Indian Affairs.

The IELE will conduct a mixed methods approach, utilizing quantitative approaches, including systematic quantitative data collection with appropriate statistical analysis, as well as reliable, robust qualitative approaches, including conducting interviews and focus groups with students, teachers, and others. The IELE will also look closely at each of the JIS project services through the use of process evaluation.

The IELE will devote considerable attention to developing, testing, and refining the survey instruments, developing the initial process evaluation, planning for focus groups and other qualitative approaches, laying the groundwork for statistical analysis, and working with project staff on long-term program improvement planning. The IELE will be responsible for all aspects of process and outcomes evaluation, including data collection, refining and defining outputs and outcomes, evaluation design consultations, refining the logic model as appropriate, planning for and conducting interviews and focus groups, and reporting of evaluation findings.

The JIS Evaluation Plan provides procedures for collecting evidence to measure the success of the proposed approach to improve student, educator, and public understanding of earth and space science and its relationship to NASA goals and objectives. The evaluation is strongly guided by the project's logic model (please see logic model on page 3). It will measure the extent to which the project has achieved its stated objectives and the extent to which the accomplishment of these objectives can be attributed to the project. The process evaluation will measure the implementation of the proposed activities and their associated procedures and whether the project is being conducted in a manner consistent with the timeline on page 12. The outcomes evaluation process will measure program outcomes and determine any significant changes in participants' knowledge, interest, confidence, and participation in STEM areas.

Outputs and Outcomes Measured

Through effective monitoring and management, data and information will be collected for each

program and activity delivered. Information will include demographics, number of students and teachers participating in the JIS project, number of teacher workshops/seminars, number of visitors to the museum/planetarium, number of public lecture series programs, activity dosage, and materials distributed (newsletters, brochures, education materials, etc.). All process outputs will be linked to the assessments administered and the type of program and activity (training, education, speakers, workshops, classroom activities, etc.). The logic model on page 3 provides a snapshot of anticipated outputs and outcomes.

Outputs: Outputs that will be measured include: 1) At least 10,000 students will participate in JIS each year; 2) at least 100 teachers and their students will visit the museum/planetarium annually; 3) at least 20 teachers will receive professional development on planetarium use each year; 4) at least 25,000 – 30,000 visitors will experience the planetarium each year; 5) at least 10 public science lecture series programs will be held each year; and 6) at least 100 science professionals will participate in research opportunities utilizing the dome projection system each year.

Performance Outcomes: Since the long-term outcomes of interest (proficiency or higher level scores on the Science Dakota STEP achievement tests, increased student enrollment in high school STEM courses and college majors, and increased number of students pursuing STEM careers) may be unobservable within the timeframe of the grant, the evaluation will focus on the following mediating variables: knowledge, interest, awareness, and confidence in STEM areas. Short-term outcomes measured include: 1) improved knowledge, interest, and awareness in STEM areas; 2) increased teacher confidence in earth/space science; 3) increased collaboration between informal and formal science educators; 4) increased interest and participation in science programs at the museum; 5) increased student and public understanding of Lakota Star Knowledge; and 6) increased opportunities for science research utilizing the dome projection system.

Data Collection and Monitoring Methods

Monitoring Outputs: An attempt will be made to obtain data from a random sample of participants in the JIS project. A total of 10,000 students, 100 teachers, 100 science professionals, and 25,000 – 30,000 museum visitors are projected to be touched by the JIS project in some form. The sample size will be approximately 10% of the students served, 100% of the teachers, 50% of the science professionals, and 3% to 5% of the visitors. A secure database located at the IELE will be used to store data and track the number of participants served and dosage provided to each participant. Evaluation of additional process outputs, such as workshops/seminars, trainings, science lecture series programs, science research opportunities, and delivery of educational resources and materials will be collected by Journey staff through data collection forms entered into a spreadsheet monthly throughout the year. Information collected will include: number of activities/events and activity descriptions, attendance, and participant demographics. IELE will routinely confer with Journey staff on the measurement of outputs and outcomes cited in the logic model, process level service delivery, and program fidelity.

Monitoring Outcomes: The evaluation process will test the following *Evaluation Questions* using quantitative and qualitative techniques with appropriate statistical methods.

Q₁: After participating in the JIS project, have students and the general public increased their knowledge, interest, and awareness in STEM (Science, Technology, Engineering, and

Mathematics) areas?

- Q₂: After participating in the **JIS** professional development activities, have K-12 teachers increased their confidence in teaching earth/space science?
- Q₃: As a result of the **JIS** project, is there increased collaboration between informal and formal science educators?
- Q₄: As a result of the **JIS** project, is there increased interest and participation in science programs at the Journey Museum?
- Q₅: After participating in the **JIS** project, is there increased understanding among students and the general public of Lakota Star Knowledge?
- Q₆: Is there increased utilization of science research opportunities at the Journey Museum utilizing the **JIS** dome projection system?

Instruments: The evaluation questions will be answered through a series of statistical tests and procedures based on the data collected from several instruments developed by the IELE and other researchers interested in STEM education. The instruments have been, or in the case of a new instrument, will be tested for validity and reliability.

The following table provides a schedule and types of data collection that will occur during the year:

Data Collection Work Plan				
Intervention	Measure	Instrument	Time	Type of Data
Out of School Time Science Program	Knowledge, Interest, Attitudes	Post Unit Questionnaires	After completion of planetarium unit	Quantitative: Likert-Scale to measure degree of agreement with a set of statements
Teacher Professional Development	Knowledge, Confidence	Pre and Post Workshop Questionnaires	Prior to start of workshop; after completion of workshop	Quantitative: Likert-Scale to measure degree of agreement with a set of statements
Science Lecture Series	Knowledge, Interest, Usefulness (Utility?), Satisfaction	Post Lecture Questionnaires	After completion of lecture	Quantitative: Likert-Scale to measure degree of agreement with a set of statements
Curriculum Enhancement	Knowledge, Interest, Attitudes, Confidence	Interviews and Focus Groups (Teachers) Attitudinal Questionnaire	Prior to and after completion of thematic unit End of Year	Quantitative: Likert-Scale to measure degree of agreement with a set of statements. Qualitative: Open-ended questions posed to science educators about their level of collaboration and application of the knowledge acquired through the program.
Student Field Trips	Interest, Attitudes, Satisfaction	Post Field Trip Questionnaire	After completion of field trip	Quantitative: Likert-Scale to measure degree of agreement with a set of statements

Family Programming	Interest, Attitudes, Satisfaction	Post Family Program Questionnaire	After completion of family program	Quantitative: Likert-Scale to measure degree of agreement with a set of statements
Lakota Star Knowledge	Knowledge, Awareness	Post Questionnaire	After completion of workshop or seminar	Quantitative measures to determine the level of knowledge acquired through the workshop.
Collaboration between Formal and Informal Science Educators	Awareness, Behavior	Interviews, Focus Groups	End of each year	Qualitative: Open end questions posed to science educators about their level of formal and informal collaboration with Journey Museum, SDSMT, etc.

The independent variables for the evaluation include dosage (number of units completed), level of skills acquisition, age, gender, and ethnicity. The dependent variables include knowledge, interest level, and attitudinal changes. All groups will be administered questionnaires that include the identified variables.

Data Collection and Analysis: The data collected will be analyzed using SPSS and Minitab. Care will be taken to measure effect size and statistical power according to the statistical tools used. When measuring significant changes, t-test analysis will be used for interval/ratio data while McNemar test will be used for categorical data wherever it is dichotomous. Measure of association between categorical data will be performed using the chi-test at the 0.05 alpha level. Additionally, statistical analysis will include using covariance of analysis and multivariate analysis of variance wherever there is a comparison of outcome data with two or more independent variables (factors). For example, the data will be analyzed based on the type of activity, gender, ethnicity, and dosage or combination of variables.

Process Evaluation: In the first year of the implementation of the project, the evaluation will have a strong emphasis on the process evaluation. As the project moves into the following years, the process evaluation will move into a more intense monitoring mode that includes assessment and data collection of program participation counts, demographics, and levels of satisfaction with delivery of the programming. At the end of each year of implementation, the evaluation team will review the quantitative and qualitative data collected and analyze it to document the achievement of specific process objectives. Overall, the evaluation process will serve to monitor the progress of the project and to help identify barriers and catalysts to the achievement of the project's goals and objectives. The recommendations made by the evaluators will be weighed against resources and practical applications for the successful implementation of the project.

Fidelity to program implementation and adherence to the project's workplan will be monitored through the process evaluation. Changes to project activities and delivery modalities will be reported to the evaluator. Any significant changes will be measured for association between initial activity design versus any significant change in the activity. The association between activity design and an outcome measure can be analyzed used the Chi Square Goodness of Fit analysis procedures. Other information to document program fidelity will be obtained through interviews with staff.

Documentation & Reporting

Information collected during the evaluation period will be shared with program staff to assure accuracy and consistency of administration of instruments. Through the collaborative process,

monitoring and suggestions for improvement will be provided through regular meetings. The quantitative and qualitative findings will be written into an evaluation report that will document the implementation and impact of the project and will be shared with project leadership and staff, NASA, and other interested stakeholders.

Evaluation Protocol

The Journey into Space project is designed to assure that each participant receives quality educational programming. The process for determining if the goals are being met for this project includes collecting demographic data about the participants, interviewing staff and participants, and obtaining accurate data from surveys and questionnaires administered in compliance with **CFR 45:46 Protection of Human Subjects Code**. The Institute for Educational Leadership & Evaluation (IELE) has an Institutional Review Board (IRB 2706). The IRB will review all protocol for the protection of human subjects in the project.

The rights and privacy of participants is paramount. Because students will not be coded or tracked during the project, active parental consent is not necessary. However, all participants will be provided an opportunity to refuse to complete any questionnaires or to participate in focus groups. All participants are protected through a rigorous system that relies on professional and independent data collection procedures, permits no personal identifying information on any survey, maintains secure data files, and has the protection of CFR 45.46.

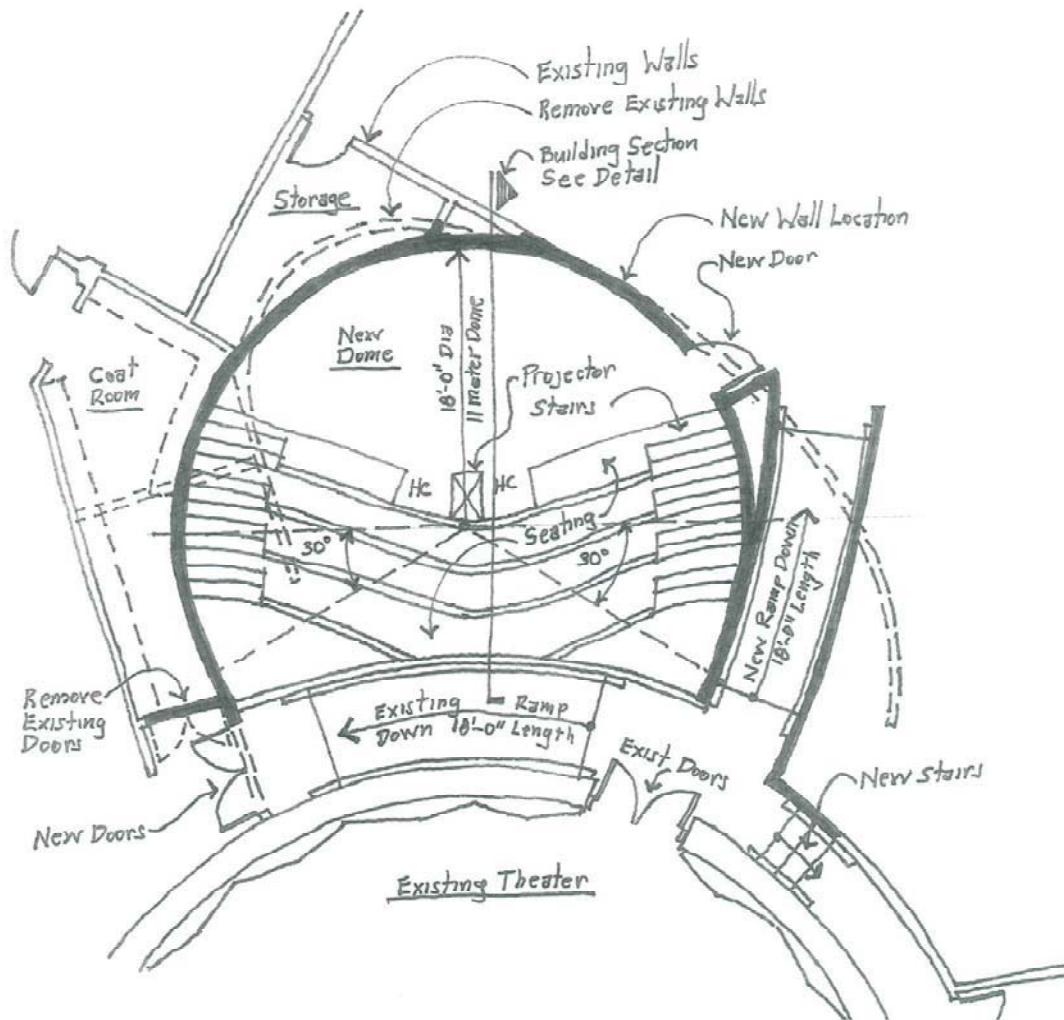
5.0 Timeline:

Journey Into Space (JIS) Milestones	Year-1 (2009-2010)	Year-2 (2010-2011)	Year-3 (2011-2012)	Year-4 (2012-2013)	Year-5 (2013-2014)
News media release	█				
Authorize architect to proceed to final design	█				
Conduct staff and partner training	█	█			
Form partner program committee	█	█			
Develop Instructor Planetarium Academy	█	█			
Develop Out of School Programming	█	█			
Develop K-12 Classes	█	█			
Develop Community and Family Programming	█	█			
Develop Lakota Star Knowledge program	█	█			
Advertise proposal for bids	█	█			
Bid opening and commence construction	█	█			
Install technology in dome	█	█			
Planetarium opening		█	█	█	█
Present Instructor Planetarium Academy at Journey Museum		█	█	█	█
School planetarium tours		█	█	█	█
Classroom program with BHSU & SDSMT		█	█	█	█
National and international lectures using dome		█	█	█	█
Collaborate with university researchers		█	█	█	█
Collaborate with community organizations		█	█	█	█
Present public programs		█	█	█	█
Conduct mid-project evaluation				█	█
Evaluate expanded education outreach effort				█	█
Conduct survey and analysis of planetarium					█

Journey Into Space Budget Justification

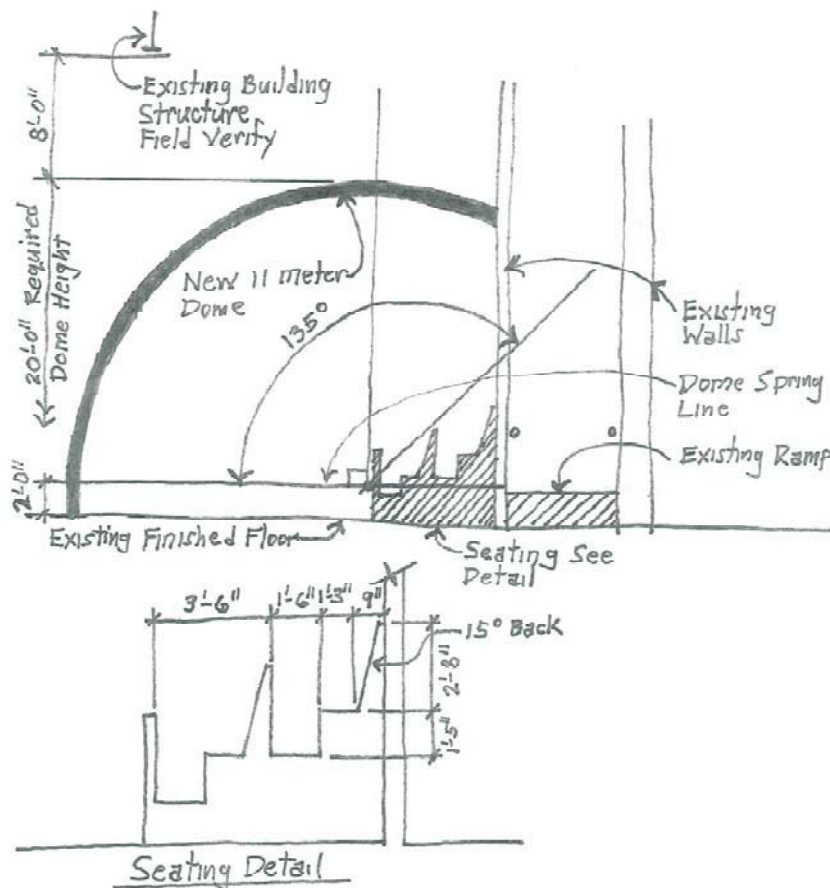
INTRODUCTION: *Journey Into Space* is a five-year project with installation of a permanent planetarium, staff training, assembly of training material, and program development scheduled for the first year and subsequent project years encompassing an extensive space and earth science outreach program.

OVERALL EFFORT: The storyline of the museum is the 2.5 billion year history of the Black Hills; the story begins in the “star-room” with a scientific and Lakota traditional explanation for the beginning. The Museum Alliance of Rapid City, Inc., the governing body of the Journey Museum, has



examined numerous potential enhancements to the museum that would reinforce our mission as an education venue for the region in natural science and the cultures of our region. After polling over 450 people from Rapid City following a viewing in a traveling version of the dome planetarium, a planetarium was deemed to be a better use of this space and a cost effective way to significantly enhance

the museum experience. The focus of Year-1 is the demolition of an existing space (star-room consisting of approximately 1,700 square feet), construction of an 18 foot radius symmetric curved wall, a new ramp and doors and installation of a permanent one-hour rated dome. The most expensive part of the planetarium project is the dome; a permanent dome was specified to maximize the use of the space. An inflatable dome could not accommodate the seating arrangement that would seat the 40 – 45 visitors that was needed to be effective as an education venue. Although a fiber glass dome was less expensive, the space was too large for a fiber glass dome and more importantly, the one-hour fire code for a public building requires an aluminum structured dome. As planetarium technology has advanced, making state-of-the-art planetariums possible in smaller venues like ours, the board approved an initiative to incorporate a planetarium into the museum. The digital-based planetarium systems like the Sciss, AB Uniview will immerse the viewer in vastly different scales – from the nanoscale of the Earth Sciences and regional GIS data to large scale structures and cosmology. This immersive visualization environment will increase the usability of our star-room space. Uniview can



also save to disk live interactive session to be sequences for later playback, providing a simple yet powerful production tool that can reduce costs by orders of magnitude and allow us to present programs previously beyond our capacity. Incorporating a digital based planetarium in the previously underutilized star-room space is a value-added move for the museum and will have a tremendously positive impact on learning within the education community, families, and the general public.

1.0 Senior Staff. The PI (senior staff) will be much more involved the first year, focusing on coordinating the details for the final design with the architect, coordinating bid advertisements and

working with the architect to select the contractor. It is estimated that 25% of the Executive Director’s time during Year-1 will be required to ensure an effective launch of Journey Into Space.

A project task force will be formed as soon as the award is announced to begin the development of project content to be chaired by the Museum’s Education Director (Co-PI). The Task Force will start compiling classroom curriculum from NASA resources; collaborate with secondary and institutions of higher learning educators to develop a library of materials. When the planetarium technology is available she will begin development of the teacher workshop in collaboration with the Astronomy professors from Black Hills State University and the South Dakota School of Mines and Technology. The workshop will be presented the following summer with the BHSU astronomy faculty as instructor. Additionally, the museum staff will begin training, curriculum development for the Lakota Star Knowledge program, and teacher workshop design by mid-fall in the first year on the flat-screen version of the UniView software. The Education Director will be responsible for coordinating all public program components of JIS and will require at least 33% of her time.

2.0 Other Personnel. *Secretarial/Clerical* responsibilities for the grant management will be the Museum’s Office Manager. The Office Manager performs all bookkeeping duties for the museum; all grant payments and expenditures will be recorded within the existing accounting software as a separate “company” to ensure that complete accountability of all NASA funds is maintained. The Office Manager will also be responsible for producing all fund reports required by NASA. The museum is audited annually by an outside auditor; the Office Manager will work with the auditors as these reports are produced. Approximately 25% of the Office Manager’s duties will be related to NASA funds management in the first year.

2.1 The estimated project construction phase is three months. (Project supervision from the contractor will be on site during pre-construction and construction with extensive involvement by the Journey Museum’s *Facility Manager* during Year-1 of the project.) The museum facility is a state-of-the-art museum with a complex HVAC, fire suppression, and alarms system; the facility manager will be required to provide technical information and access to the facility’s systems during the preparation for the project and the construction phase. These duties will require approximately 25% of the Facility Manager’s time during Year-1. The Journey Museum’s facility manager holds a BS in Electrical Engineering and would only be required during the pre-construction and construction period of time and not in subsequent grant years.

2.2 A part-time Education Department person, working approximately 20 hours per week, will be required to collect data on workshops/seminars, trainings, science lecture series programs, science research opportunities, and delivery of educational resources and materials. The part-time Journey Museum staff person will develop data collection forms and enter the data into a spreadsheet monthly throughout the year. Information collected will include: number of activities/events and activity descriptions, attendance, and participant demographics. This data will be submitted to the independent evaluator (Institute for Educational Leadership and Evaluation®) on a monthly basis for analysis and reporting. Additionally, the person will perform administrative and clerical duties in support of the development of teacher workshops and curriculum development.

Table of Personnel and Work Effort

Name	Title	Institution	Role	Effort (% of Year 1 and 2)	Effort (% of Year 3 – 5)
Raymond D. Summers	Executive Director	The Journey Museum	Principle Investigator	25%	10%
Diane Melvin	Education Director	The Journey Museum	Co-Principle Investigator	33%	33%

Journey Into Space
The Journey Museum

Dr. Vladimir Sobolev	Professor	SD School of Mines and Technology	Co-PI Science	10%	5%
Gary Hargens	Facility Manager	The Journey Museum	Facility Advisor	25% (Yr-1)	-
Peg Christie	Office Manager	The Journey Museum	Financial reporting	25%	25%
TBD	Part-Time Ed. Dept. Staff	The Journey Museum	Reporting, scheduling and documenting	50%	50%
Kristi Thielen	Education Specialist	The Journey Museum	Public Programs design and outreach	25%	25%
Dr. John Usera	President/C EO	Chiesman Center for Democracy	Consultant/Evaluator	5%	5%
Pat Schulte	Director	IELE	Consultant/Evaluator	5%	5%
Joel Halvorson	Program Director	MN Planetarium Society	Consultant/Collaborator	10%	-
Dr. Dan Durben	Assoc. Professor	Black Hills State University	Consultant/Collaborator	5%	5%
Mark Farrand	HS Teacher	Rapid City School District	Consultant/Collaborator	5%	5%
Nancy Anderson-Smith	Dir. Outreach	SD School of Mines and Technology	Collaborator	10%	5%
Dr. Ben Saylor	Dir. CAMSE	Center for Advancement of Math and Science Education	Collaborator	10%	5%
Albert White Hat, Sr.	Assoc. Professor	Sinte Gleska University	Consultant	10%	5%
Thomas Durkin	Deputy Director	SD Space Grant Consortium	Collaborator	10%	5%
Stacy Phelps	Program Coordinator	SD GEAR UP	Collaborator	10%	10%

3.0 Equipment Items. The heart of the planetarium is the projection system and Uniview which is a computer graphics platform bringing information data-bases to life in a 3D environment much like an immersive computer game. Uniview’s Digital Universe is the world’s most extensive and accurate 3D atlas of the universe. The interactive database combines the latest astronomical data provided by scientists from around the globe. Developed at the American Museum of Natural History and Hayden Planetarium in conjunction with NASA, the vast database includes stars, star clusters, star-forming regions, multi-wavelength views of the Milky Way, and the latest galaxy and quasar surveys, and much more. In this vast atlas, these elements are combined to bring you a view of the observable universe, conveying the size and structure of our galaxy and the cosmic web of galaxies that surround us. Uniview also allows remote collaboration and shared experiences between display venues, schools and field experts, providing the Journey Museum the tool to “domecast” public programming from similarly equipped planetariums and museums throughout the world. *The Rapid City community will no longer be isolated by distance from access to the latest space and earth scientists from across the globe!* The 4,000 Lumen SX3 projector utilizes an LCOS light source and has a high definition resolution of 1400 x 1050. The single omni-focus lens projector provides a totally immersive visual environment within the truncated 11 meter dome. The projector and Uniview are operated by specifically designed operating hardware incorporating the Dome Video Player and OmniMap

Geometry Correction Software Library to ensure that all points within the dome are in focus. The 5.1 audio systems in the dome are provided by the Blue Sky MediaDesk 5.1 surround sound system. A black anodized aluminum adjustable stand will be mounted to the floor in front of the amphitheater seating for the computer and projector. The budget also includes installation of the technology, adjustment and set up, and training for the both on site and an additional 20 hours of remote training on operations. The quotes were obtained from The Elumenati, 2612 S. Greeley St. #203, Milwaukee, WI 53207 (<http://www.elumenati.com/>); we determined that given that NASA and USGS have purchased a GeoDome system from Elumenati and that NASA and USGS would be developing public programs for this dome it would be cost efficient to for us to have a compatible system.

4.0 Travel. Team Members for the JIS project range from as close as across town to the northern Black Hills community of Spearfish (50 miles), Sinte Gleska University in Mission, SD on the Rosebud Indian Reservation (180 miles) and the Minnesota Planetarium Society in Minneapolis, MN (607 miles). During Years-1 and 2 the total travel budget for the project development team includes five trips for team members from these locations.

Team Member	Round Trip	# of Trips	Cost = \$0.505/ mile
Albert White Hat, Sr.	360 miles	5	\$909
Dr. Ben Saylor	98 miles	5	\$248
Joel Halvorson	1215 miles	2	\$1227
		Total	\$2384

Additionally, the PI or Co-PI will make one trip per year (\$4,000) to JPL in Washington, DC or Los Angeles, CA to attend the Museum Alliance meeting.

5.0 Participant/Trainee Support Costs. Annually, a teacher workshop will be held during the summer to provide up to 20 teachers a three-day accredited astronomy and earth science course with the goal of providing the educators with standards-driven classroom curriculum to increase their confidence in teaching space science. The final phase of the workshop will be a lesson block to certify the teacher in the operations of the planetarium. The teacher is then permitted to bring their classroom to the planetarium for up to four sessions per year. A \$100 per day stipend will be paid to each teacher attending the workshop.

6.0 Other Direct Costs.

6.1 *Materials and Supplies* consist of education leave-behind kits for each of the classroom visits of the certified teachers having attended the summer workshops (up to 20) annually. The leave behind kits include a space science DVD, an audio CD and book, total value = \$100 per kit. Copier services for the project are estimated to cost \$2,000 annually. We currently spend approximately \$17,000 annually on copier lease and maintenance contract; the Education Department utilizes 50% of this effort and the JIS is expected to increase the Education Department’s activity by 25% (\$2,125).

6.2 *Consulting* services will include 64 hours of design and consulting services with Joel Halvorson from the Minnesota Planetarium Society in our efforts to develop dome content for the teacher workshops, middle school and High School content and the Lakota Star Knowledge public program. Mr. Halvorson’s consulting rate is \$50 per hour. Mr. Halvorson is extremely knowledgeable in the Uniview digital universe and has pioneered education outreach with their portable dome; he will work with the content experts to provide the production expertise complete the program in Uniview. Dr.

Dan Durben, Black Hills State University and Dr. Vladimir Sobolev, South Dakota School of Mines and Technology are astronomy instructors within their respective institutions’ Physics Departments; both will be involved in the content development as consultants based on approximately 30 hours each @ \$50/hour during the total of Year-1 and Year-2. In Years 3 – 5 between the two instructors they will support the annual Teacher Workshop with 3 hours each. Dr. Sobolev is the Co-PI Science for the project and is also located in Rapid City.

6.2.1 The Lakota Star Knowledge tradition of the Lakota people is central their understanding of the relationships between what is observed in the heavens and the earth. A Lakota Star Knowledge program in the planetarium will prove an important outreach to the large American Indian population in the region and provide a better understanding by non-Indians of the Lakota people will be developed through the consulting services of Mr. Albert White Hat, Sr. from the Lakota Studies Department at Sinte Gleska University, Mission, SD. It will have an impact on youth involved in the GEAR UP program which is designed to better prepare middle and high school students for college through academic preparation programs and scholarships for students, professional development activities for educators, and college access information for students and parents. A combined effort to develop a specific program that provides an expanded immersive experience in the Lakota Star Knowledge tradition and a robust outreach effort to the American Indian population and non-Indian population in our region and will have a significant impact on raising the awareness of science and technology while emphasizing the richness of Lakota culture. Mr. White Hat, Sr. will be consulting on the Lakota Star Knowledge content for approximately 6 hours each year during Year-1 and 2 (\$1,200)

6.2.2 The astronomy programs at South Dakota School of Mines and Technology and Black Hills State University will be supported by the JIS planetarium; the two instructors will also be involved in the development of the teacher workshops to be presented each summer. Additionally, a high school astronomy teacher will be involved to ensure that local, state and national standard are incorporated into the teacher workshop program. Travel and consultant services will be provided to the astronomy instructors during the first and second years to assist in developing the curriculum and adjusting, if necessary after the first year.

6.3 Alteration and Renovation. Detailed description and justification for alteration and renovation of 1,650 square feet of the Journey Museum and installation of a 1,974 square foot dome.

PROJECT ESTIMATE	Qty.	Unit Cost	Total
GENERAL CONDITIONS			19,872
Field Supervision	3 mo	3,924.24	11,773
Clean-up	3 mo	1,556.79	4,670
Temporary Signs	1 ls	508.30	508
Final Clean	1,650 sf	0.41	682
Small Tools	1 ls	254.15	254
Punchlist and Final Inspections	16 mh	62.04	993
Trash Removal	3 mo	330.40	991

Justification: *The construction phase of the alteration and renovation of the museum is scheduled to take three months. The estimates above cover the contractor’s estimated costs associated with the general site costs associated with the project.*

DEMOLITION

8,555

General

Remove coat shelf	27	lf	5.59	151
Remove doors and frame	1	pr	46.97	47
Remove GWB wall	1,080	sf	2.05	2,215
Remove acoustic ceiling tile	1,650	sf	0.42	686
Remove carpet - glue down	1,650	sf	0.55	915

Patch and clean-up

Misc. demolition and repair	1	ls	1,542.30	1,542
Dust partition - 2x4 w/poly	200	sf	0.84	168
Haul trash to dumpster	20	cy	31.02	620
Trash disposal	20	cy	46.53	931
HVAC demolition	1,650	sf	0.52	853
Electrical demolition	1,650	sf	0.26	427

Justification: The Journey Museum overall is 49,600 square feet of which 23,000 square feet is dedicated to exhibit space. The existing star-room space (1,650 square feet) has been identified as underutilized and the board of directors has determined that our mission would be greatly enhanced if this space were utilized as a planetarium. Demolition of existing walls is necessary in order to place a symmetric 18 foot radius truncated dome in the space. Additionally, electrical and HVAC systems services this space will be removed and reestablished in the renovation phase with the dome installation.

DOORS AND WINDOWS

4,194

Interior

Wood door/h.m. frame/hdw.	1	ea	1,058.47	1,058
Wood door pair/h.m. frame/panic hdw.	1	pr	3,135.58	3,136

Justification: Two new doors will be added to the space, the first is at the primary entrance to the dome at the floor level. Access at the floor level is necessary in order to be ADA compliant. The second door will be placed at the bottom of the ramp leading to the museum lobby primarily as a second fire exit for the theater.

INTERIORS

220,929

3 5/8" metal stud (20 ga. @ 16")/ 5/8" GWB	936	sf	5.74	5,374
3 5/8" metal furr (20 ga. @ 16")/ 5/8" GWB	2,000	sf	4.16	8,322
Sound/thermal batt insulation - 4"	2,576	sf	0.93	2,400
Paint GWB - primer and 2 coats latex	5,754	sf	0.59	3,416
Carpet tile - 24 oz.	857	sf	5.31	4,550
Carpet - protect existing	600	sf	1.43	861
Terrazzo - patch and polish	300	sf	13.24	3,972
Terrazzo - base patch and polish	80	lf	21.10	1,688
VCT	240	sf	2.56	615
Vinyl base - 4"	367	lf	2.06	757
Acoustic ceiling - protect	600	sf	0.94	561
Acoustic ceiling - 2x2 - 5/8"	888	sf	3.85	3,414
Dome	1,974	sf	185,000.00	185,000
Skim coat/interior finish - included	1,974	sf		

Justification: This the construction/renovation phase of the project consists of construction of a curved wall, new carpet, painting, concrete terrazzo patching and replacement, ceiling installation, and installation of the prefabricated dome. The aluminum framed prefabricated dome is built to specifications offsite. A one-hour fire code for public buildings required the use of a fire resistant material that was more expensive than alternative materials.

**EQUIPMENT and
FURNISHINGS**

42722

Seating risers	122	lf	251.24	30,652
Rail	43	lf	87.85	3,777
Steps	48	lfr	34.66	1,663
Projector base prep.	1	ea	406.00	406
Stair	12	lfr	57.02	684
Ramp	36	lf	153.86	5,539

Justification: The seating for the dome will be accommodated with a modified bleacher concept, maximizing the seating for the space. It consists of two risers, rails and steps with the capability to seat approximately 40 – 45 people. Due to the proposed planetarium location within the star-room which served as the main access to the exhibition gallery and is now closed off, a new ramp is added from the theater exit to provide access to the main museum exhibition area. The ramp also includes railing and additional steps to an existing staff bypass to another portion of the museum (see diagram of museum in appendix A).

MECHANICAL

6,886

Fire sprinkler - relocate head	5	ea	151.65	758
HVAC - rework planetarium systems	509	sf	9.38	4,775
adjust drops	4	ea	338.12	1,352

Justification: Demolition of existing walls and ceiling necessitated the relocation of fire sprinkler heads within the dome and to rework and adjust the HVAC drops and systems within the dome and exit area from the existing Wells Fargo Theater.

ELECTRICAL

15,187

Electrical	1	ls	15,186.46	15,187
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Justification: As with the HVAC and fire sprinklers above, the planetarium space electrical systems will be modified and upgraded to support the planetarium and comply with electrical codes.

SUB-TOTAL				318,344
Sales Tax	6.5%			4,076
Liability Insurance	(included)			
Builder's Risk Insurance	(included)			
Contractor Profit	10%			32,242
Payment and Performance Bonds	1.25%			4,030
South Dakota Contractors Excise Tax	2.04%			7,239
SUB-TOTAL				365,931
Contingency	10%			36,593

Justification: Although the architectural firm that is providing the alteration/renovation estimates and is the firm that designed and managed the construction of the museum in 1996- 97 and is very familiar with the museum, unforeseen economic and project circumstances necessitate the incorporation of a small contingency fund to ensure completion of the project.

ESTIMATED BID VALUE		402,524
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Engineering design	10%	40,252
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Justification: Due to the complexities of working with multiple vendors providing complex architectural features (dome) and planetarium technologies, a 10% design calculation was utilized.

TOTAL ESTIMATED BID VALUE		442,776
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6.4 The Uniview Ucare Silver support covers licensing, technical support and the capability to host the recipients of “domecasts”. The annual licensing of \$3,900 is reduced 20% with long-term purchase of a minimum of 3 years; therefore, $\$3,900 \times 5 \text{ years} - 20\% = \$15,600$.

6.5 The Uniview Digital Universe contains AMNH/NASA interactive/immersive navigation of the entire visible documented universe. This is the content for the planetarium.

6.6 The external evaluation will be conducted by a third-party evaluator, the Institute for Educational Leadership and Evaluation® (IELE) in Rapid City, SD. Dr. John J. Usera will serve as the principal evaluator for the Journey into Space (JIS) Project. Dr. Usera is currently the CEO of the Chiesman Center for Democracy and serves as a principal researcher and evaluator for the IELE. He also holds the rank of Associate Professor of Educational Research and Curriculum Theory at Black Hills State University in Spearfish, SD and Visiting Professor of Research at Phillips Graduate Institute in Encino, CA. The evaluation consulting services are calculated on 10% of the annual grant total, minus construction of the planetarium and planetarium equipment purchases. Evaluations will be conducted on programmatic elements of the JIS.

7.0 Indirect Costs. The Journey Museum does not have a negotiated indirect cost with NASA. The indirect costs included in this proposal are calculated on the ratio of planetarium space (approximately 2,000 square feet to the overall size of the museum (49,600 square feet), which is 4%. Our annual facility related overhead is \$135,000, which includes maintenance and repair, utilities, structural and boiler insurance and maintenance supplies.

THE JOURNEY MUSEUM

NAME: Raymond D. Summers

TITLE: Executive Director

BIRTHPLACE AND DATE: Mitchell, South Dakota, USA, May 6, 1947

EDUCATION:

B.A., Dakota Wesleyan University, Mitchell, SD 1969, Major (Mathematic)
40 graduate credits, Ball State University, Muncie, IN., Major (Public Administration)

RESIDENTS: Keystone, South Dakota 57751

MARITAL STATUS: Married the former Colette M. Haiar of Mitchell, SD.

PROFESSIONAL EXPERIENCE:

Executive Director, The Journey Museum	2002-Present
Retired, USAF at the rank of Colonel	1999
Senior regional advisor to USAF's Civilian Auxiliary	1994-1999
Commander, 28 Support Group, Ellsworth AFB, SD	1992-1994
Group manager traveling headquarters inspection team	1991-1992
Deputy Base Commander, Malmstrom AFB, MT	1989-1991
Commander, 28 Air Refueling Sq. Ellsworth AFB, SD	1987-1989
Various USAF operations, staff, and education assignments	1970-1987

THE JOURNEY MUSEUM

NAME: Diane M. Melvin

TITLE: Education Director

BIRTHPLACE AND DATE: Minneapolis, MN, USA, April 19, 1955

EDUCATION:

M.S., Concordia University, Mequon, WI 2004, Major - Education Administration

B.A., California State University, San Bernardino CA 1990, Major – Mathematic

A.A. and A.S. Victor Valley Community College, Victorville CA 1987 – Liberal Arts

Training in Architectural Drafting and Estimating, School of Science, Whapeton ND 1974, No Degree.

RESIDENCE: 1639 S. Grand Vista Ct. Rapid City, South Dakota 57701

MARITAL STATUS: Married to David A. Melvin of Rapid City, SD.

PROFESSIONAL EXPERIENCE:

Education Director, The Journey Museum	2006-Present
Math Teacher, Hill City School District, Hill City, SD	1998-2004
Math instructor, South Dakota School of Mines and Technology	1997-1998
Classroom instructor, Juvenile Services Center, Rapid City, SD.	1996-1997
Math instructor, Madison Area Technical College WI	1995-1996
Math Teacher, Apple Valley Unified School District, CA	1991-1995

PROFESSIONAL AFFILIATIONS:

Rotating member of the South Dakota Space Grant Consortium management team

Curriculum Vitae

Vladimir Sobolev

Department of Physics, South Dakota School of Mines and Technology, Rapid City, SD 57701
Tel. 605 394-1225; FAX 605 394-2365; E-mail: Vladimir.Sobolev@sdsmt.edu

Employment history

Teaching Positions

08/2001 – present **Professor, Associate Professor**, South Dakota School of Mines and Technology
08/1999 – 06/2001 **Associate Professor**, Minot State University, Minot, ND
01/1999 - 06/1999 **Adjunct Professor**, Clayton College and State University, Morrow, GA
12/1996 - 07/1997 **Adjunct Professor**, Montana State University, Bozeman, MT
08/1995 - 10/1996 **Professor**, National Taiwan Normal University, Taipei, Taiwan
04/1992 - 08/1995 **Visiting Professor**, National Taiwan University, Taipei, Taiwan
01/1988 - 04/1992 **Professor**, Kharkov State University, Kharkov, Ukraine
09/1976 - 01/1988 **Professor, Assoc. Prof., Assist. Prof.**, Donetsk State University Ukraine
09/1973 - 07/1976 **Instructor in Physics and Mathematics**, High School with Advanced Physics and Mathematics Education, Donetsk, Ukraine.

Research and Industrial Positions

08/1997 - 12/1998 **Executive Scientist**, Sage Technology Inc., Atlanta, Georgia
01/1988 - 04/1992 **Head of Department of Properties of Materials**, Institute for Single Crystals of the Academy of Sci. of Ukraine, Kharkov, Ukraine
04/1973 - 01/1988 **Head of Group, Senior Staff Researcher, Junior Staff Researcher**, Physics & Technology Institute of the Academy of Sci. of Ukraine, Donetsk, Ukraine
03/1971 - 04/1973 **Junior Staff Researcher**, Physics & Technology Institute of the Academy of Sci. of Ukraine, Kharkov, Ukraine

Visiting appointments

05/2000 – 08/2000 **Visiting Research Professor**, National Taiwan University, Taipei, Taiwan

Short term visits sponsored by the USSR-Germany Program on High-Temperature Superconductivity

1991 **Visiting Scientist**, University of Göttingen; University of Erlangen-Nürnberg; Research Center Jülich
1990 **Visiting Scientist**, University of Dortmund; Research Center Karlsruhe

Education

Doctor of Physical and Mathematical Sciences (Habilitation Degree), 01/1984

The Supreme Attestation Committee of the USSR

Dissertation: “*Non-equilibrium states of quasi-particles under the action of external alternating fields*”

Ph.D. in Physical and Mathematical Sciences, 01/1974

Physics & Technology Institute of the Academy of Sciences of Ukraine, Donetsk, Ukraine

Dissertation: “*Relaxation processes in antiferromagnets*”

MS in Physics Summa cum Laude, 02/1971

The Kharkov State University, Ukraine

Thesis: *Ground states of thin magnetic films*

Teaching experience

➤ **Undergraduate & service courses taught at the SDSMT:**

Curriculum Vitae

PHYS 183 Elements of Modern Astronomy; PHYS 211, 213 University Physics I & II; PHYS 213L University Physics Laboratory; PHYS 361/ 461 Optics; PHYS 312/ 314 Experimental Physics Design I&II; PHYS 391/491 Independent Study in Physics; PHYS 412/ 414 Advanced Design Projects I&II.

➤ Graduate courses taught at the SDSMT:

PHYS 721 Advanced Electricity and Magnetism; PHYS 671 Mathematical Physics; MES 603 Atomic/Molecular Structure of Materials; MES 604 Structure/Properties Relationships of Materials; MES 791 Topics.

Courses Taught at other Universities

Service courses:

Minot State University, ND:	Astronomy; College Algebra
Clayton College & State Univ., GA:	Selected Topics in Science-Astronomy; Introductory Physics II; Introductory Physics Laboratory II
Kharkov State University, Ukraine:	Problems and Achievements of Modern Physics; Physical Basis of Modern Technologies
Donetsk State University, Ukraine:	Algebra-based Course of Physics (for Biology and Geology majors); Physics Methods in Biology and Medicine

Undergraduate courses:

Montana State University, MT:	General & Modern Physics 3
Minot State University, ND:	General Physics I&II; General Physics Laboratory I&II; Optics; Classical Mechanics; Electricity and Magnetism

Donetsk State University, Ukraine: General Physics; General Physics Laboratories

Graduate courses:

National Taiwan University:	Dynamic Properties of Magnetic Materials; Phase Transitions; Quantum Mechanics; Statistical Physics, Selected Chapters of Solid State Physics
Kharkov State University, Ukraine:	Solid State Physics; Physics of Ferroelectrics and Piezoelectrics; Phase Transitions; Quantum Mechanics
Donetsk State University, Ukraine:	Classical Mechanics; Classical Electrodynamics; Kinetics; Solid State Physics; Phase Transitions; Magnetic Measurements; Experimental Methods in Solid State Physics

➤ Advised graduate students at both MS and Ph.D. levels

Sixteen graduate students supervised to a Ph.D.

Research interests

- ❖ Properties of materials with spontaneous polarization (ferroelectric, magnetic, and magnetoelectric substances)
- ❖ Phase transitions in materials with spontaneous polarization
- ❖ Kinetic and relaxational behavior of systems of interacting quasiparticles in substances subjected to the action of intense external alternating fields (magnetic and electric fields)
- ❖ Optical properties of magnetic and magnetoelectric materials
- ❖ Properties of high-temperature superconducting materials

During seven years at the SDSM&T a research program covering the following areas is developed:

- Phase transitions in ferroelectric substances with co-existing ferroelectric and antiferroelectric phases and specifics of properties of these materials caused by the phenomenon of phase coexistence
- Structure of magnetic domain walls and their dynamics in ultrathin (several atomic layers) magnetic films
- Influence of structural defects on the surface and in the bulk of magnetic crystal on behavior of its magnetization

Curriculum Vitae

- Formation of nanostructures in the vicinity of interphase boundaries in ferroelectrics with coexisting ferroelectric and antiferroelectric phases

Future research plans are focused on two major topics:

- Influence of mesoscopic structure of ferroelectrics with coexisting ferroelectric and antiferroelectric phases on key operational parameters of these materials and development of technology of sample treatment aimed on improvement of these parameters
- Studies of nonequilibrium properties and nonlinear magnetization dynamics in nanosized ferromagnetic materials driven by spin-polarized electric current

Publications

- Three reviews, over 200 articles (192 articles in international and soviet translated journals)
- Over 60 presentations at different conferences since 1990 (seven invited and plenary talks)
- Three invention patents (USSR) on methods of measurements of parameters of magnetic thin films

Grants at the SDSMT

Co-PI of the Office of Naval Research Grant No. N00014-06-1-0616.

Project title: *Modeling and experimental studies of spin transport for multifunctional semiconductor devices*. Starting date: April 6, 2006. Funding: \$ 835,870

PI of the Nelson Research Grant No. 03822 from the SDSM&T Foundation.

Project title: *Dynamics of magnetization driven by spin-polarized electric current in nanosized ferromagnetic samples*. Starting date: July 1, 2006. Funding: \$ 5,000

PI of the NSF/EPSCoR Regents Rushmore Faculty CAREER Research Grant No. EPS-0091948.

Project title: *Particle Size Influence on Ferroelectric and Piezoelectric Characteristics and Phase Transitions in Lead Zirconate Titanate based Solid Solutions*. Duration: January 12, 2004 - August 31, 2005. Funding: \$ 68,915 plus additional funding of \$ 6,619

Co-PI of the Bush Teaching Enhancement Grant.

Project title: *Pilot of scientific reasoning/principles comprehension scoring rubric or primary trait matrix*. Duration: June 1, 2004 - July 31, 2004. Funding: \$ 3,500

Co-PI of the Army Research Lab Cooperative Agreement Grant No. DAAD19-02-2-0011.

Project title: *Theoretical and Computational Studies of Thermal Conductivity of Carbon Nanotube Suspensions*. Duration: June 1, 2002- May 31, 2003. Funding: \$114,000

PI of the Governor's Faculty Award

Project title: *Integration of technology application in redesigned University Physics II Course*

Duration: June 1, 2002-August 15, 2002. Funding: \$ 18, 900

PI of the Bush Faculty Development Teaching Enhancement Grant

Project title: *Enhancement of students' learning experience and incorporation of a web-based instructional component into the course of Electricity and Magnetism (PHYS 421, 423)*. Duration: January 1, 2002-June 30, 2002. Funding: \$ 5,000

University Service

Committee's membership:

Materials Engineering and Science (MES) (PhD) Program Steering Committee

Physics Curriculum Committee; Ethics Committee

College of Science and Letters Curriculum Committee

Ethics Committee

Special Events Sponsored by SDSMT

Science Contest Committee; High Plains Regional Science Fair Committee

Professional Societies Membership

American Physical Society; Chinese Physical Society, R.O.C.; Ukrainian Physical Society

THE JOURNEY MUSEUM

Organization: The Journey Museum

Principle Investigator: Raymond D. Summers

Pending and Ongoing Support:

Title of Award	PI	Commitment	Funding Agency	Period	Amount
Journey Museum Youth Initiative	Raymond Summers	1 month	Bush Foundation **	2006-09	\$366,000

Co-Investigator: Diane Melvin

Pending and Ongoing Support:

Title of Award	PI/CoI	Commitment	Funding Agency	Period	Amount
Journey Museum Youth Initiative	Diane Melvin	7 month	Bush Foundation **	2006-09	\$366,000
Children's Library Lab	Diane Melvin	< 1 month	Vucurevich Foundation *	2008	\$8,500

* Point of Contact for Vucurevich Foundation is Sandra Diegel, Executive Director, sdiegel@jtvf.org, 605 349-3141, fax: 605 343-5264

** Point of Contract for Bush Foundation is Kelly M. Kleppe, Grants Manager, kkleppe@bushfoundation.org, 651 227-0891, Fax: 651-297-6485