NSF FORM
MARCH 1962 9C-20 B

Budget Bureau No. 99-R057.4
Approval Expires Dec. 31, 1962

SUMMARY SHEETS FOR A PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION FOR SUPPORT OF A
(Title): Summer Institute in Physics
for Junior High School and High School Teachers of General Science and of Physics

A. NAME and address of host institution: Georgetown University, Washington 7, D. C.

B. Grant should be made to: Georgetown University, Washington 7, D. C.

C. Director of institute: Prof. Dr. Mr. (or: Rev.) Matthew P. Thekaekara, S.J.

Director's academic title: Associate Professor; department: Physics
Acting Chairman

Director's office phone: area code: 202, exchange & No.: FE 7-3300, ext.: 670
Director's home phone: area code: 202, exchange & No.: FE 7-3300

D. Location of institute: (Main campus) (encircle), or Other (specify:) _____

Operating dates: from June 24 to August 16, 1963. Length in weeks: 8

E. Encircle intended participating teachers; list number of stipends desired:
(Junior High School:) 20 Junior College: _____ Other: _____ : _____
(Senior High School:) 20 College: _____ (Specify) (No.)

F. Encircle area(s) in which institute courses would be offered (see instructions):
Biology Chemistry Earth Sciences General Science Mathematics
(Physics) Other (specify): _____

G. Encircle code number(s) corresponding to subject-matter background of participants for whom institute is designed (see instructions): 0 (1) 2 3 4 5

H. Typical No. of credits obtainable: 6 Quarter-hours (Semester-hours) Graduate credit (Undergraduate credit) (Encircle appropriate terms.)

Degree(s) (if any) offered by school, for which credit can typically be used: B.S.

I. This proposal should be evaluated as a (summer & in-service combined sequential, summer sequential, (unitary institute); (Encircle the one most appropriate class.)

The proposal is for a (new institute), renewal of a 1962 institute). (Encircle one).

J. Total amount requested from the National Science Foundation: $49,971.50

Operational cost requested from NSF per participant per week: $ 37.41

K. Signature of director: _____ Date: May 1, 1962
Matthew P. Thekaekara, S.J.
Name and title (and on one copy, signature) of
official authorized to sign for host institution: Joseph F. Cohalan, S.J., Univ. Treasurer

Name of president (unless listed on line above): Very Rev. Edward B. Bunn, S.J.

BUDGET FOR PROPOSED 8 WEEK SUMMER INSTITUTE AT Georgetown University
(Institution)

A. Support of Participants

1. 40 stipends at $ 600.00 each	$24,000.00	
2. 10 dependents at $120.00 each	12,000.00	
3. 40 travel allowances at $ 50 each	2,000.00	
4. Total for Support of Participants		$38,000.00 (A)

B. Operational Costs

Staff (including salaries, honoraria, travel, etc.)

*5. Director (total amount for institute)	$3,500.00	
*6. Associate Director, if any (as above)		
*7. Staff (How many? 2 full time)	2,000.00	
Staff (How many? 1 part time)	1,000.00	
*8. Lecturers (How many?)		
9. Secretarial and clerical	1,500.00	
*10. Assistants or other staff		
*11. Retirement	360.00	
12. Subtotal for Staff	$8,360.00	

*STARRED ITEMS IN PARTICULAR SHOULD BE ITEMIZED, ELABORATED, OR EXPLAINED ON THE NEXT TWO SHEETS.

Other Direct Costs

13. Office supplies, communications, publicity	$ 600.00	
14. Cost of laboratory materials	1,000.00	
15. Field trips (if any)	250.00	
*16. If required: Health service or insurance, and similar costs incurred by the institution on behalf of participants	200.00	
*17. Miscellaneous direct costs		
18. Subtotal for Direct Costs other than Staff	$2,050.00	
19. Total Direct Operational Costs: Add lines 12 and 18		$10,410.00
20. Allowance for Indirect Costs (up to 15% of line 19)		1,561.50
21. Total Operational Costs: Add lines 19 and 20		11,971.50 (B)

C. Tuition and Fees (registration, credit fees, etc.)

22. 40 tuitions	at $ 180.00	$7,200.00	
23. 40 registrations and lab fees	at 15.00	600.00	
24. Total for Tuition and Fees			$ 7,800.00
25. Total Operational Costs in excess of Tuition and Fees: Subtract line 24 from line 21. Record remainder			4,171.50
26. Total Cost of Institute: Add lines 4, 24, 25. Record sum			49,971.50

D. Contributions from Sources other than NSF

*27. Contribution from host institution	$ -0-
*28. Contribution from	
29. Total Contributions from Sources other than NSF	$ -0-
30. Total Amount Requested from National Science Foundation: Subtract line 29 from line 26. Record remainder	$ 49,971.50
31. Operational Cost Requested from NSF: Subtract line 29 from line 21. Record remainder	$11,971.50
32. Operational Cost Requested from NSF per Participant per Week: Divide line 31 by No. of stipends and by No. of weeks	$ 37.41

BUDGET DETAILS (On this and the next sheet please make any necessary or desired explanations or elaborations.)

A. Support of Participants

B. Operational Costs

Staff

Please supply the requested information concerning . . .	DIRECTOR	ASSOCIATE DIRECTOR (if any)
The time that the individual will devote to the institute during the weeks it is in session will comprise what percentage of a normal work load? (Do not record more than 100% for either individual.)	100 %	____ %
Will this include teaching in the institute?	Yes	____
How will the individual's time during the weeks the institute is in session be divided between teaching in the institute and administration in the institute?	Teaching: 80 %	____ %
	Administr.: 20 %	____ %

Compensation:

a. Total institute salary for the individual for teaching (if any) and administration for the weeks the institute is in session . .	$1,800.00	$ ____
b. Allowance (not to exceed six weeks) to Director for work ppreceding and following the institute. (See instructions.) . .	$1,500.00	-0-
c. Transportation and per diem to attend Directors' Meeting . . .	200.00	-0-
*d. Allowance for dislocation, any other necessary travel for institute, etc. . . . . If any, must be explained:	$ -0-	$ ____
e. Totals for the four preceding items . . . . . (Record these totals on lines 5 and 6 in BUDGET.)	$3,500.00	$ ____

Elaboration concerning the above or any other Staff items:

5. Allowance to the Director for work preceding and following the Institute is calculated as six weeks of his 1962-63 academic salary.
6. Normal summer school salary, full time, 6 weeks is $1,350.00. Four-thirds of this amount (8 weeks) is $1,800.00.
11. Retirement is calculated at 8% of staff and secretarial salary. The Director is not on the retirement plan of the University.

Other Direct Costs

16. A health fee of $ 5.00 is collected from each full time student in the summer school.

C. Tuition and Fees

Registration $5.00 and Laboratory fees $10.00 is charged by the Summer School per student.

Contributions from Sources other than NSF

(Note that all starred items on pages 2 and 3 must be explained on this or the preceding sheet.)

1. HOST INSTITUTION

Georgetown University will be the host institution for the Summer Institute and the staff of the department of physics will direct its academic activities. The Georgetown University, founded in 1789 is the oldest Catholic institution of higher learning in the United States. The stately Healy tower of the main building of the University overlooks a picturesque campus around, the Potomac river to the south, and the Nation's Capital which has grown around and beyond historic Georgetown. The physics department occupies at present the basement of the Healy Building, but during the summer of 1962 it will be moving to the new $4.2 million Science Building.

The University comprises the College of Arts and Sciences, Graduate School, School of Medicine, Law School, School of Dentistry, School of Foreign Service, School of Nursing, Institute of Languages and Linguistics, School of Business Administration, Summer School, Astronomical Observatory and Seismograph Station. The total enrollment is approximately eight thousand. Course offerings lead to Bachelor's, Master's and Doctor's degrees in most areas.

The Summer School of the University (enrollment 2400), besides conducting regular courses at the graduate level, has in recent years also administered institutes and conferences for specialized groups of participants. These programs have been under the sponsorship of the National Science Foundation and other agencies. Among such programs conducted during the summer of 1961 were: Contemporary Literary Criticism; Christian Social and Political Thought; Foundations of the Physical Sciences; Writers' Conference; all these were sponsored by the University. The I.C.A. sponsored an Orientation Program for Foreign Students. A Teacher Training program for Italian-Colombian teachers of English sponsored by the Department of H.E.W. and a Conference for Native Teachers of French under the N.D.E.A. were also conducted by the Summer School of 1961.

During the Summer of 1962 there will be a Conference held for College Professors on Recent Advances in Astro-geophysics, an Institute for High School teachers in mathematics and several special programs similar to those of the previous summer.

2. MAJOR OBJECTIVES OF THE INSTITUTE

The basic plan of this institute was drawn up in a series of informal conferences between the faculty members of the physics department and certain other science departments. The experience gained by the mathematics department, which has conducted a similar conference for the past five years, has been of great help. The theme of the Institute has grown out of a Conference for College professors on Recent Advances in Astro-geophysics which we have held for three consecutive summers and an In-Service Institute in physics for Junior High School teachers which is being held during the present academic year.

The major objective is the upgrading of science teaching at the high school and junior high school level. Only a small percentage of science teachers in schools have had physics as major for their undergraduate course in college. Physics is less easily learned by mere reading of text books than

perhaps certain other branches of the physical sciences. In the present space age the interest and curiosity of school age students have sufficiently been aroused in the problems of physics, and questions arise in the classroom which the teacher cannot well answer with his conventional training. The scientific accuracy of some of the widely publicized accounts of physics and space physics is not what a professional physicist would like it to be. A thorough grasp of the basic principles of physics today, and of their applications to problems of space will certainly help to make the science teacher more effective and inspiring to the students.

The store of knowledge in the teacher is, we believe, more important than adequacy of buildings and facilities, or abundance of visual aids, or even a large number of method courses. Through an Institute of the kind we are proposing, we think we can be of the greatest assistance to the poorly prepared teacher whose background is weak or whose training was completed long ago.

Eight weeks will be devoted to a concentrated course on general physics and modern physics. Special emphasis will be placed on applications to space physics. What we are planning is not a repetition of the course in general physics which is given to freshmen college students. All the basic topics in general physics should be thoroughly studied, but a great deal more attention should be paid to developments of twentieth century physics than is customary in general physics courses. Our experience of the Summer Conferences and the In-Service Institute has also taught us how readily problems of the current space physics can be treated as a logical outcome of classical and modern physics. Full use will be made of the extensive set of demonstration experiments which our physics department has developed during recent years. The laboratory sessions for doing experiments at the college level and the quiz sessions for working out problems will help the teachers get a more personal insight into the physics theory which is covered in the lecture sessions.

3. SELECTION CRITERIA AND PARTICIPANTS

Candidates for participation in the Institute will have to meet the following minimal criteria:

a. a teacher of general science or physics in junior or senior high school
b. at least three years' experience
c. recommendation by his immediate superior
d. at least a certain amount of previous training in physics

Every attempt will be made to keep the group homogeneous. A conscious effort will be made to select the "average teacher" and hence applicants with a physics major or a strong background in physics will be avoided. Junior and senior high schools will be given about the same representation, provided the other criteria are met. Age as such will not be a limiting factor. Those who, by their local position, can influence the teaching of physics will be of particular value to the Institute. Those who have had similar institutes in other institutions will be passed over, since except for the emphasis on space physics and the visits to local laboratories, most of the features of our Institute are to be found in several other physics Institutes as well.

4. COURSES

The department plans to offer two three-credit courses.

a. Physics I
b. Physics II

Physics I will cover mechanics, heat and sound. Physics II will cover light, electricity and magnetism. Major aspects of twentieth century physics will be incorporated throughout both courses. All relevant applications to space physics will be treated in detail. Demonstration experiments will be made during the lectures. Laboratory sessions and quiz sessions will follow the lectures.

The lectures will be given by Rev. M. P. Thekaekara, S.J. The demonstrations will be prepared by Mr. R. A. Regalbuto. Dr. E. J. Finn will assist Dr. Thekaekara for part of the lecture sessions. Two Senior Instructors will handle the lab sessions and the quiz sessions.

The academic program of the entire institute will be held on the fifth floor of the New Science Building which is to be opened in the fall of 1962. The building is fully air conditioned and the facilities for instruction and laboratory work are the best desirable.

5. STAFF

The following members of the physics department will staff the Summer Institute. They have previously worked together for one year on an In-Service Institute on a similar topic and for several years on the courses in general physics for physics majors and pre-medical students.

a. REV. M. P. THEKAEKARA, S.J., M. S. Madras University, 1939, Ph.D. Johns Hopkins, 1956. At present Acting Chairman and Associate Professor, Department of Physics, Georgetown University. Previous experience: Director of Summer Conference for College Professors on "Recent Advances in Astro-geophysics" during the summers of 1960, 1961 and 1962; Director, In-Service Institute for Junior High School Teachers, 1961-62. Dr. Thekaekara will be giving most of the lectures of the Institute.

b. DR. EDWARD J. FINN took his M.S. from Catholic University in 1955 and Ph.D. from Georgetown University in 1961; has been engaged in teaching and research since 1952. At present Assistant Professor at Georgetown University; is teaching the general physics course in the In-Service Institute, 1961-62.

Both Dr. Thekaekara and Dr. Finn have had several years experience in teaching physics at graduate and undergraduate levels, and they have been closely connected with teacher-training programs. Dr. Thekaekara will be a full-time lecturer in the Summer Institute and Dr. Finn will lecture on special topics on a part-time basis.

c. RALPH A. REGALBUTO, Practical Physicist, will serve on a part-time basis to set up the demonstrations for the lectures and the equipment for the lab sessions. Mr. Regalbuto has been associated with the physics department since 1955, and has developed a unique set of demonstrations to cover all of general physics and modern physics. He will be in charge of the acquisition, repair and preparation of all laboratory equipment needed for the Institute. His previous experience includes similar positions held at the University of Chicago and at Columbia University. Mr. Regalbuto is the Secretary of the Chesapeake Section of the American Association of Physics Teachers.

These three permanent staff members of the physics department have already been consulted.

In addition, two Instructors will serve on the Institute on a full-time basis. Both of them will be men with a Master's degree in physics and with several years of experience in handling classes in general physics. The responsibility of the Instructors will include being in charge of the lab sessions and the quiz sessions. It is not possible to give at this early stage the names of the Instructors who will be available in the summer of 1963, but it is certain that the Institute will have no difficulty in finding duly qualified instructors.

6. CREDIT

The two courses will each carry three credits. The credits are at the undergraduate level and may be applied to a B.S. degree. Georgetown University does not offer a special degree for teachers. The undergraduate credits are especially helpful for teachers who do not yet have a bachelor's degree in science or have not enough credits in physics to qualify for entrance to a master's program in science education.

7. PLANS AND AVAILABLE FACILITIES

(A) FORMAL INSTRUCTION

The classes will be held on Monday through Friday. Lecture hours are 10:15 a.m. to 11:10 a.m. and 11:30 a.m. to 12:10 p.m. On Tuesdays and Thursdays the second lecture session will be devoted to solving of numerical problems. These two sessions will be handled by the two Instructors, each with twenty of the participants. The eight other lectures per week will be given by Dr. Thekaekara or Dr. Finn.

There will be two lab sessions per week, 2 p.m. to 4:25 p.m., on Mondays and Wednesdays for one group of twenty participants and on Tuesdays and Thursdays for the other group.

(B) INFORMAL INSTRUCTION

Arrangements will be made for field trips on Friday afternoons. We plan to visit several important centers of research in and around Washington.

Our past experience with the Conferences for College teachers shows that the group will be cordially welcomed at these centers and will benefit greatly from the visits. Among the centers we plan to visit are: The David Taylor Model Basin, the National Bureau of Standards, the Applied Physics Laboratory, the Naval Research Laboratory, the Diamond Ordnance Fuze Lab.

Arrangements will also be made to familiarize the participants of the Institute with current physics research at the University. One of the Burroughs E 101 computers will be placed at the disposal of the teachers. In a few hours it should be possible to master the essential steps in programming the computer and using it for ordinary problems. Some of the participants may, if they so wish, also work along with the research personnel of the department on the Undergraduate research participation program.

(C) RECREATION

The gymnasium and the tennis courts of the University will be open to those attending the Institute. Information concerning theaters, concerts, sight seeing opportunities, beach resorts, etc. may be obtained from the Office of the Director. A special program of movie classics will be running concurrently with the Institute, and all participants will be permitted free of charge to see any movie they choose. Evenings, week-ends and two of the afternoons are free. An air-conditioned drawing room in one of the new dormitories will be set apart for the participants. The drawing room has a television set and is located on the same floor as the rooms of the participants.

One or two picnic style dinners will be held for the Institute staff, the participants and their families. Other social functions which are usually arranged for similar conferences at Georgetown University include a reception by the Summer School and parties arranged at the homes of the staff members.

(D) HOUSING AND EATING

Dormitory rooms will be reserved for the participants (air-conditioned if desired, single or double). There will also be a certain area in the University dining hall reserved for the participants so that they can eat with the staff. Families will be guided in finding furnished living quarters in the Georgetown area.

The meals will be on a pay-as-you-go basis and will cost about $20.00 per week. The rental for the rooms is about $15.00 per week and will depend on the facilities required. The dining halls and cafeteria are located in the fully air-conditioned New South Building, opened in the fall of 1959. In addition, there are several attractive restaurants in the Georgetown area.

Note: Please use this routing slip to forward this copy to teachers who would be interested in this Institute.

From: _____

To: _____

From: _____

To: _____

From: _____

To: _____

SUMMER INSTITUTE IN PHYSICS
GEORGETOWN UNIVERSITY
WASHINGTON 7, D. C.

NON PROFIT ORG.
U. S. POSTAGE
PAID
WASHINGTON, D. C.
Permit No. 3901

SUMMER INSTITUTE

For Teachers of Physics and General Science

Georgetown University • Washington 7, D. C.

JUNE 24 TO AUGUST 16, 1963

SPONSORED BY

THE NATIONAL SCIENCE FOUNDATION

- Forty stipends and travel allowances available.
- Allowance for dependents.
- A six-credit-course in general physics and modern physics.
- Emphasis on applications to Space Physics.
- Lecture room demonstrations and laboratory experiments.
- Visits to Research Centers in and around Washington.

For application forms, write to

REV. M. P. THEKAEKARA, S.J.
GEORGETOWN UNIVERSITY
WASHINGTON 7, D. C.

Telephone FE 7-3300, ext. 670

PLEASE POST AND CIRCULATE

SUMMER INSTITUTE IN PHYSICS

OBJECTIVES

With the support of the National Science Foundation the Department of Physics of Georgetown University offers a Summer Institute in Physics.

The major objective of the Institute is the upgrading of science teaching at the High School and Junior High School level.

In the present space age the interest and curiosity of school age students have sufficiently been aroused in the problems of physics, and questions arise in the classroom which the teacher cannot well answer with his conventional training. The scientific accuracy of some of the widely publicized accounts of physics and space physics is not what a professional physicist would like it to be. A thorough grasp of the basic principles of physics today, and of their applications to problems of space will certainly help to make the science teacher more effective and inspiring to the students.

The store of knowledge in the teacher is, we believe, more important than adequacy of buildings and facilities, or abundance of visual aids, or a large number of method courses. Through an Institute of the kind we are proposing, we think we can be of the greatest assistance to the poorly prepared teacher whose background is weak or whose training was completed long ago.

Eight weeks will be devoted to a concentrated course on general physics and modern physics. Special emphasis will be placed on applications to space physics. What we are planning is not a repetition of the course in general physics which is given to freshmen college students. All the basic topics in general physics will be thoroughly studied, but a great deal more attention will be paid to developments of twentieth century physics than is customary in general physics courses. Our experience of the Summer Conferences and the In-Service Institute has also taught us how readily problems of the current space physics can be treated as a logical outcome of classical and modern physics.

Full use will be made of the extensive set of demonstration experiments which our physics department has developed during recent years. The laboratory sessions for doing experiments at the college level and the quiz sessions for working out problems will help the teachers get a more personal insight into the physics theory which is covered in the lecture sessions.

ELIGIBILITY

The applicant must be a teacher of physics or general science in any of the grades 7 through 12 at the time of application.

Every attempt will be made to keep the group homogeneous. A conscious effort will be made to select the "average" teacher, and hence applicants with a physics major or a strong background in physics will be avoided. Junior and Senior High School teachers will be given about the same representation. Those who by their local position can influence the teaching of physics will be of particular value to the Institute.

PARTICIPANT SUPPORT

Tuition: Each participant is granted **a scholarship** which covers tuition, laboratory fees, registration and health service.

Stipend: Each participant will be awarded **a stipend of $600.00** for the eight-week period.

Dependency Allowance: An additional allowance will be made for dependents at the rate of **not more than $120.00 per dependent,** and up to a maximum of four dependents per participant. The N.S.F. Grant provides for a total of 100 dependency allowances.

Travel Allowance: Travel money will be provided for one round trip from the participant's home to Georgetown, at the rate of **4¢ per mile, to a maximum of $80.00.**

These subventions will be paid to participants in four payments, the first being at the opening of the Institute.

THE ACADEMIC PROGRAM

(A) **Formal Instruction:**

The Institute offers a course in physics which consists of two parts:

Part I: Mechanics; Kinetic Theory; Electricity and Magnetism.

Part II: Wave motion in Light; Relativity; Quantum Theory; Atomic, Nuclear and Particle Physics.

There will be one lecture daily, Monday through Friday, for an hour and twenty minutes. The lectures will be given by **Associate Professor M. P. Thekaekara** (Director of the Institute) and **Associate Professor Ralph S. Henderson.**

There will be two lab sessions per week, each for two hours and twenty-five minutes, on Mondays and Wednesdays for one section of twenty participants and on Tuesdays and Thursdays for the other section. The lab report will be written and submitted during the session.

There will also be a quiz session for two hours daily, Monday through Friday, for solving problems and for discussion. The participants will meet in two separate sections for these quiz sessions, which are optional but are strongly recommended.

The course carries six undergraduate credits.

(B) **Informal Instruction**

Arrangements will be made for field trips on Fridays. Among the centers to be visited are the David Taylor Model Basin, the National Bureau of Standards, the Applied Physics Laboratory, the Naval Research Laboratory, the Goddard Space Flight Center.

Arrangements will also be made to familiarize the participants with current physics research at the university. One of the Burroughs E 101 computers will be placed at the disposal of the teachers. In a few hours it should be possible to master the essential steps in programming the computer and using it for ordinary problems.

The physics auditorium for the lectures and demonstrations, the laboratories and the computer room are located in the New Science Building of the University, which was opened in the fall of 1962.

EXPENSES

Participants will be expected to purchase their own books and supplies. The text books required for the course will be available at the University Bookstore at a total cost not exceeding $10.00.

Dormitory rooms will be reserved for the participants (air-conditioned if desired). There will also be a certain area in the University dining hall reserved for the participants so that they can eat with the staff. Families will be guided in finding furnished living quarters in the Georgetown area.

The meals will be on a pay-as-you-go basis and will cost about $20.00 per week. The dining halls and cafeteria are located in the fully air-conditioned New South Building, opened in the fall of 1959. In addition, there are several attractive restaurants in the Georgetown area.

The rental for the rooms for the eight week period is:

Men and women:	Air-conditioned	$120.00
	Not air-conditioned	$100.00
Married couples:	double room (no housekeeping; no children)	$200.00
For male religious only, board		$280.00

APPLICATION PROCEDURE

Applicants will be required to complete **the N.S.F. application form 9C-24B** for Summer Institutes—1963, and **the Applicant Record Card, N.S.F. Form 9C-25B.**

All applicants must be postmarked no later than February 15, 1963, to guarantee that they will be considered.

The Director of the Institute will notify each applicant of his status (accept, alternate, reject) by March 15, but not earlier than March 5, 1963.

Recipients of stipend offers will have until April 1, 1963 to accept or decline.

For application forms or further information, write to

Rev. M. P. Thekaekara, S.J.
Georgetown University
Washington 7, D. C.

NSF FORM
MARCH 1963 9C-20 B

FORM APPROVED
Budget Bureau No. 99-R183

SUMMARY SHEETS FOR A PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION FOR SUPPORT OF A

(Title): Summer Institute in Physics
for Junior and Senior High School Teachers of General Science and Physics.

A. NAME and address of host institution: Georgetown University, Washington 7, D.C.

B. Grant should be made to: Georgetown University, Washington 7, D.C.

C. Director of institute: Prof. Dr. Mr. (or: Rev.) Matthew P. Thekaekara, S.J.

Director's business mail address: Georgetown University, Washington 7, D. C.

Director's academic title: Associate Professor ; department: Physics

Director's office phone: area code: 202, exchange & No.: FE. 7-3300, ext.: 670
Director's home phone: area code: 202, exchange & No.: FE. 7-3300

D. Location of institute: (Main campus) (encircle), or Other (specify): _____

Operating dates: from June 29 to August 21, 1964. Length in weeks: 8

E. Encircle intended participating teachers and list the number of stipends desire:
(Junior High:) 20 (Senior High:) 20 Other: (specify) : _____

F. Encircle area(s) in which institute courses would be offered (see instructions):
Biology Chemistry Earth Sciences General Science Mathematics
(Physics) Other (specify): _____

G. Encircle code number(s) corresponding to subject-matter background of participants for whom institute is designed (see instructions): 0 (1) 2 3 4 5

H. Typical No. of credits obtainable: 8 Quarter-hours Semester-hours Graduate credit Undergraduate credit (Encircle appropriate terms.)

Degree(s) (if any) offered by school, for which credit can typically be used: B.S.

I. This proposal should be evaluated as a (summer & in-service combined sequential, summer sequential, (unitary) institute.) (Encircle the one most appropriate class.)

The proposal is for a new institute x
renewal of a 1963 institute ____ (Check one)

J. Total amount requested from the National Science Foundation: $ 50,442.09

Operational cost requested from NSF per participant per week: $ 38.88

K. "If this proposal is granted support by the National Science Foundation, the resulting institute will be conducted in conformity with the policies of the Foundation."

Signature of director: _____ Date: June 16, 1963
Rev. M. P. Thekaekara, S.J.

Name and title (and on one copy, signature) of official authorized to sign for host institution: Rev. Joseph A. Haller, S.J.
University Treasurer

Name of president (unless listed on line above): Very Rev. Edward B. Bunn, S.J.

BUDGET FOR PROPOSED 8 WEEK SUMMER INSTITUTE AT Georgetown University
(Institution)

A. Support of Participants

1.	40	stipends at $60.00 each	$24,000.00
2.	100	dependents at $120.00 each	$12,000.00
3.	40	travel allowances at $50.00 each	$ 2,000.00
4.		Total for Support of Participants	$38,000.00 (A)

B. Operational Costs

Staff (including salaries, honoraria, travel, etc.)

*5.	Director (total amount for institute)	$3,665.00		
*6.	Associate Director, if any (as above)			
*7.	Staff (How many? 2 full time)	$2,000.00		
	Staff (How many? 1 part time)	$1,000.00		
*8.	Lecturers (How many? ____)			
9.	Secretarial and clerical	$1,500.00		STARRED ITEMS
*10.	Assistants or other staff			IN PARTICULAR
*11.	Retirement	$ 604.21		SHOULD BE
12.	Subtotal for Staff		$8,769.21	ITEMIZED,

ELABORATED,

Other Direct Costs — OR EXPLAINED

13.	Office supplies, communications, publicity	$ 800.00		ON THE NEXT
14.	Cost of laboratory materials	800.00		TWO SHEETS.
15.	Field trips (if any)	250.00		
*16.	If required: Health service or insurance, student union privileges, or cultural activities	200.00		
*17.	Miscellaneous direct costs			
18.	Subtotal for Direct Costs other than Staff		$2,050.00	
19.	Total Direct Operational Costs: Add lines 12 and 18			$10,819.21
20.	Allowance for Indirect Costs (up to 15% of line 19)			1,622.88
21.	Total Operational Costs: Add lines 19 and 20			12,442.09 (B)

C. Tuition and Fees (registration, credit fees, etc.)

22.	40 tuitions	at $240.00	$9,600.00	
23.	40 registration & lab fees	at $ 15.00	$ 600.00	
24.	Total for Tuition and Fees			$10,200.00
25.	Total Operational Costs in excess of Tuition and Fees: Subtract line 24 from line 21. Record remainder			$ 2,242.09
26.	Total Cost of Institute: Add lines 4,24,25. Record sum			$50,442.09

D. Contributions from Sources other than NSF

*27.	Contribution from host institution	$ =0=
*28.	Contribution from _____	____
29.	Total Contributions from Sources other than NSF	$ =0=
30.	Total Amount Requested from National Science Foundation: Subtract line 29 from line 26. Record remainder	$50,442.09
31.	Operational Cost Requested from NSF: Subtract line 29 from line 21. Record remainder	$12,442.09
32.	Operational Cost Requested from NSF per Participant per Week: Divide line 31 by No. of stipends and by No. of weeks	$38.88

BUDGET DETAILS (On this and the next sheet please make any necessary or desired explanations or elaborations.)

A. Support of Participants

B. Operational Costs

Staff

Please supply the requested information concerning . . .	DIRECTOR	ASSOCIATE DIRECTOR (if any)
The time that the individual will devote to the institute during the weeks it is in session will comprise what percentage of a normal work load? (Do not record more than 100% for either individual.)	90 %	____ %
Will this include teaching in the institute?	Yes	____
How will the individual's time during the weeks the institute is in session be divided between teaching in the institute and administration in the institute? Teaching:	70 %	____ %
Administr.:	30 %	____ %

Compensation:

a. Total institute salary for the individual for teaching (if any) and administration for the weeks the institute is in session . . .	$1,890.00	$ ____
b. Allowance (not to exceed six weeks) to Director for work preceding and following the institute. (See instructions.) . . .	$1,575.00	- 0 -
c. Transportation and per diem to attend Directors' Meeting	$ 200.00	- 0 -
*d. Allowance for dislocation, any other necessary travel for institute, etc. . . . . If any, must be explained:	$ - 0 -	$ ____
e. Totals for the four preceding items . . . . . (Record these totals on lines 5 and 6 in BUDGET.)	$3,665.00	$ ____

Elaboration concerning the above or any other Staff items:

5. Allowance to the Director for work preceding and following the Institute is calculated as six weeks of his 1963-64 academic salary.
6. Normal Summer School salary full-time for six weeks is $1,417.50. Four-thirds of this amount is $1,890.00.
11. Retirement is calculated at 7.4% of staff and secretarial salary.

(Can be continued on next sheet)

Information on this page will be considered by the Foundation and its advisory panels as confidential.

Other Direct Costs

14. The Summer School charges $10.00 per student as laboratory fees for the usual course of experiments. The participants of the Institute will also spend about four hours each with the Burroughs E 101 computer. The rental of the computer has been fixed by the Physics Department at the nominal rate of $2.50 per hour.

40 x $10.00 + 40 x 4 x $ 2.50 = $800.00

16. A health fee of $5.00 is collected from each full-time student in the Summer School.

C. Tuition and Fees

Registration $5.00 and Laboratory Fees $10.00 is charged by the Summer School per student.

Contributions from Sources other than NSF

(Note that all starred items on pages 2 and 3 must be explained on this or the preceding sheet.)

1. HOST INSTITUTION

Georgetown University will be the host institution for the Summer Institute, and the staff of the Department of Physics will direct its academic activities. The Georgetown University, founded in 1789, is the oldest Catholic institution of higher learning in the United States. The stately Healy tower of the main building of the university overlooks a picturesque campus and its many buildings. The Potomac river is to the south, and the Nation's Capital, which has grown around and beyond historic Georgetown, is to the west. The Physics Department which was formerly in the Healy building, now occupies the fifth floor and many areas of the first and second floors of the new Basic Science Building which is some distance to the north of Healy.

The University comprises the College of Arts and Sciences, Graduate School, School of Medicine, Law School, School of Dentistry, School of Foreign Service, School of Nursing, Institute of Languages and Linguistics, School of Business Administration, Summer School, Astronomical Observatory and Seismograph Station. The total enrollment is approximately eight thousand. Course offerings lead to Bachelor's, Master's and Doctor's degrees in most areas.

The Summer School of the University (enrollment 2600), besides conducting regular courses at the graduate and undergraduate level, has in recent years also administered institutes and conferences for specialized groups of participants. These programs have been under the sponsorship of the Georgetown University or that of the National Science Foundation and other agencies. Among such programs conducted during the Summer of 1962 were the Writers Conference and a conference on Contemporary Literary Criticism, both sponsored by the University. The A.I.D. sponsored an Orientation Program for Foreign Students. Over 300 Peace Corps volunteers underwent a strenuous training program prior to their departure for Ethiopia. The National Science Foundation sponsored a Summer Conference for College Teachers and a Summer Institute for High School Teachers. A Teacher

Training Program for Italian-Colombian Teachers of English sponsored by the H.E.W. and a Conference for Native Teachers of French under the N.D.E.A. were also conducted by the Summer School of 1962.

During the Summer of 1963 there will be twenty-four special programs. Among these are: Conference on Ethics and International Politics, Writers Conference, a series of Linguistic Programs, Reading Improvement course, Summer Institute in Physics and Mathematics, Forensics Institute, and a Collegiate Studies Program for High School Students.

2. MAJOR OBJECTIVES OF THE INSTITUTE

The basic plan of this institute was drawn up in a series of informal conferences between the faculty members of the Physics Department and certain other science departments. The experience gained by the Mathematics Department, which has conducted a similar conference for the past six years, has been of great help. The theme of the Institute has grown out of a Conference for College Professors on Recent Advances in Astro-Geophysics which we have held for three consecutive Summers and an In-Service Institute in Physics for Junior High School Teachers which has been held for two academic years.

The major objective is the upgrading of science teaching at the high school and junior high school levels. Only a small percentage of science teachers in schools have had physics as major for their undergraduate course in college. Physics is less easily learned by mere reading of text books than perhaps certain other branches of the physical sciences. In the present space age the interest and curiosity of school-age students have sufficiently been aroused in the problems of physics, and questions arise in the classroom which the teacher cannot well answer with his conventional training. The scientific accuracy of some of the widely publicized accounts of physics and space physics is not what a professional physicist would like itto be. A thorough grasp of the basic principles of physics today, and of their applications to problems of space will certainly help to make the science teacher more effective and inspiring to the students.

The store of knowledge in the teacher is, we believe, more important than adequacy of buildings and facilities, or abundance of visual aids, or even a large number of method courses. Through an Institute of the kind we are proposing, we think we can be of the greatest assistance to the poorly prepared teacher whose background is weak or whose training was completed long ago.

Eight weeks will be devoted to a concentrated course on general physics and modern physics. Special emphasis will be placed on applications to space physics. What we are planning is not a repetition of the course in general physics which is given to freshmen college students. All the basic topics in general physics should be thoroughly studied, but a great deal more attention should be paid to the developments of twentieth century physics than is customary in general physics courses. Our experience of the Summer Conferences and the In-Service Instutues has also taught us how readily problems of the current space physics can be treated as a logical outcome of classical and modern physics. Full use will be made of the extensive set of demonstration experiments which our Physics Department has developed during recent years. The laboratory sessions for doing experiments at the college level and the quiz sessions for working out problems will help the teachers get a more personal insight into the physics theory which is covered in the lecture sessions.

3. SELECTION CRITERIA AND PARTICIPANTS

Candidates for participation in the Institute will have to meet the following minimal criteria:

a. a teacher of general science or physics in junior or senior high school
b. at least three years' experience
c. recommendation by his immediate superior
d. at least a certain amount of previous training in physics

Every attempt will be made to keep the group homogeneous. A conscious effort will be made to select the "average teacher" and hence applicants with a physics major or a strong background in physics will be avoided. Junior and senior high schools will be given about the same representation, provided the

other criteria are met. Age as such will not be a limiting factor. Those who, by their local position, can influence the teaching of physics will be of particular value to the Institute. Those who have had similar institutes in other institutions will be passed over, since except for the emphsis on space physics and the visits to local laboratories, most of the features of our Institute are to be found in several other physics Institutes as well.

4. COURSES

The Department plans to offer two four-credit courses -

a. Physics I - Classical Physics
b. Physics II - Modern Physics

Physics I will cover mechanics, electricity and magnetism. Physics II will cover wave optics, relativity, atomic and molecular physics, solid state theory, physics of the nucleus and elementary particles. All relevant applications to space physics will be treated in detail. Demonstration experiments will be made during the lectures. Laboratory sessions and quiz sessions will follow the lectures.

The lectures will be given by Rev. M. P. Thekaekara, S.J. and Dr. Ralph S. Henderson. The demonstrations will be prepared by Mr. R. A. Regalbuto. Two Senior Instructors will handle the lab sessions and the quiz sessions.

The academic program of the entire Institute will be held in the Science Building which was opened in the Fall of 1962. The quiz sessions and the lab sessions will be on the fifth floor and lectures will be in the Physics Auditorium on the first floor. The building is fully air-conditioned and the facilities for instruction and laboratory work are the best desirable.

5. STAFF

The following members of the Physics Department will staff the Summer Institute. They have previously worked together for one year on a Summer Institute on a similar topic and for several years on the courses in General Physics for physics majors and pre-medical students.

a. REV. M. P. THEKAEKARA, S.J., M.S. Madras University, 1939, Ph.D. Johns Hopkins, 1956, Associate Professor, Department of Physics, Georgetown University. Previous experience: Director of Summer Conference for College Professors on "Recent Advances in Astro-geophysics" during the Summers of 1960, 1961 and 1962; Director, In-Service Institute for Junior High School Teachers, 1961-1962, 1963 -1964. Director, Summer Institute 1963. Dr. Thekaekara is a Consultant on a part-time basis at the Goddard Space Flight Center and Principal Investigator for a Summer Workshop on Solar Simulation. He will be giving most of the lectures of the Institute, particularly in the areas of Modern Physics and Space Physics.

b. DR. RALPH S. HENDERSON, B.A. College of Wooster, 1936, M.A. Harvard, 1941, Ph.D. Harvard, 1955. The professional experience of Dr. Henderson includes: secondary school teacher in Egypt and France, 1936-1939; professor at the Engineering School of Robert College, Istanbul, 1948 to 1954; associate professor, College of William and Mary, 1954-1955. In 1955 Dr. Henderson joined the Physics Department of Georgetown University. During the Summer of 1959, Dr. Henderson directed an N.S.F. conference for college professors. During the academic year 1960-1961, he was on a Senior Post-Doctoral Fellowship at Columbia University.

Both Dr. Thekaekara and Dr. Henderson have had several years experience in teaching Physics at graduate and undergraduate levels, and they have been closely connected with teacher-training programs.

c. RALPH A. REGALBUTO, Practical Physicist, will serve on a part-time basis to set up the demonstrations for the lectures and the equipment for the lab sessions. Mr. Regalbuto has been associated with the Physics Department since 1955, and has developed a unique set of demonstrations to cover all of General Physics and Modern Physics. He will be in charge of the acquisition, repair and preparation of all Laboratory equipment needed for the Institute.

His previous experience includes similar positions held at the University of Chicago and at Columbia University. Mr. Regalbuto is the Secretary of the Chesapeake Section of the American Association of Physics Teachers.

These three permanent staff members of the Physics Department have already been consulted.

In addition, two Instructors will serve on the Institute on a full-time basis. Both of them will be men with a Master's degree in Physics and with several years of experience in handling classes in General Physics. The responsibility of the Instructors will include being in charge of the lab sessions and the quiz sessions. It is not possible to give at this early stage the names of the Instructors who will be available in the Summer of 1964, but it is certain that the Institute will have no difficulty in finding duly qualified instructors.

6. CREDIT

The two courses will each carry four credits. The credits are at the undergraduate level and may be applied to a B.S.degree. Georgetown University does not offer a special degree for teachers. The undergraduate credits are especially helpful for teachers who do not yet have a Bachelor's degree in Science or have not enough credits in Physics to qualify for entrance to a Master's program in Science Education.

7. PLANS AND AVAILABLE FACILITIES

(A) FORMAL INSTRUCTION

The classes will be held on Monday through Friday. Lecture hours are 9:30 a.m. to 10:30 a.m. and 10:50 a.m. to 12:00 Noon. On Tuesdays and Thursdays the second lecture session will be devoted to solving of numerical problems. These two sessions will be handled by the two Instructors, each with twenty of the participants. The eight other lectures per week will be given by Dr. Thekaekara or Dr. Henderson.

There will be two lab sessions per week, 2 p.m. to 5 p.m., on Mondays and Wednesdays for one group of twenty participants and on Tuesdays and Thursdays for the other group. The laboratory reports will be written and submitted during the lab session.

(B) INFORMAL INSTRUCTION

Arrangements will be made for field trips on Friday afternoons. We plan to visit several important centers of research in and around Washington. Our past experience with the Conferences for college teachers shows that the group will be cordially welcomed at these centers and will benefit greatly from the visits. Among the centers we plan to visit are: The David Taylor Model Basin, the National Bureau of Standards, the Applied Physics Laboratory, the Naval Research Laboratory, the Diamond Ordnance Fuze Lab, and the Goddard Space Flight Center.

Arrangements will also be made to familiarize the participants of the Institute with current physics research at the University. One of the Burroughs E 101 computers will be placed at the disposal of the teachers. In a few hours it should be possible to master the essential steps in programming the computer and using it for ordinary problems. Some of the participants may, if they so wish, also work along with the research personnel of the Department on the Undergraduate Research Participation Program.

(C) RECREATION

The gymnasium and tennis courts of the University will be open to those attending the Institute. Information concerning theaters, concerts, sight-seeing opportunities, beach resorts, etc., may be obtained from the Office of the Director. A special program of movie classics will be running concurrently with the Institute, and all participants will be permitted free of charge to see any movie they choose. Evenings, weekends and two of the afternoons are free. An air-conditioned drawing room in one of the new dormitories will be set apart for the participants.

One or two picnic-style dinners will be held for the Institute staff, the participants and their families. Other social functions which are usually arranged for similar conferences at Georgetown University include a reception by the Summer School and parties arranged at the homes of the staff members.

(D) HOUSING AND EATING

Dormitory rooms will be reserved for the participants (air-conditioned if desired, single or double). There will also be a certain area in the University dining hall reserved for the participants so that they can eat with the staff. Families will be guided in finding furnished living quarters in the Georgetown area.

The meals will be on a pay-as-you-go basis and will cost about $20.00 per week. The rental for the rooms is about $15.00 per week and will depend on the facilities required. The dining halls and cafeteria are located in the fully air-conditioned New South Building, opened in the Fall of 1959. In addition, there are several attractive restaurants in the Georgetown area.

* * * * *

SUMMER INSTITUTE IN PHYSICS

Georgetown University, Washington D.C. - June 24-August 16, 1963

Group photograph of participants

From left to right: (front row) Mr. Regalbuto, Fr. Thekaekara, F.D.R. Dixon, P. Gazzara, M. Dembrow, Mrs. J. Koterwas, T. Antonicci, Sr. Donald Schisler, Janice T. Carter; (second row) Dr. Henderson, C.L. Penrod, M. Ferrara, R. Rackovan, J. DeLucia, W. Bowen, J. DeVries, R. Cramer, Mr. Devassey, S. Parker, Mr. McGibney, I. Margerison; (third row) R. Martini, E. Chaney, R. Purnell, L. Sheets, R. Capers, A. Liggins, J. Burke, T. Mills, J. Urban, R. Capie; (fourth row) B. Rudinsky, J. Koterwas, C. Hensler, W. Mehlferber, C. Strever, A. Bruzda, H. Gibbs, I. Lamson.

SUMMER INSTITUTE IN PHYSICS

Georgetown University, Washington D.C. - June 24 - August 16, 1963

DIRECTOR: REV. M. P. THEKAEKARA, S.J.

LIST OF PARTICIPANTS

Mr. Thomas E. Antonicci 218 S. 8th St., Lebanon, Pa. (Lebanon Catholic, 14th & Chestnut, Lebanon, Penna.)
Mr. William L. Bowen North Street, Hebron, Conn. (Rham High, Wall Street, Hebron, Conn.)
Mr. Alfred C. Bruzda 2908-D Dunbrin Rd., Baltimore 22, Md. (Holabird Junior High, 1701 Delvale Ave., Baltimore 22, Md.)
Mr. Allen H. Bryant 1202 Newfield Rd., Baltimore 7, Md. (Catonsville Junior High School, 106 Bloomsbury Ave., Baltimore 28, Md.)
Mr. John F. Burke 36 East Mt. St., Worcester, Mass. (Forest Grove Junior High, 495 Grove St., Worcester, Mass.)
Expenses
Mr. Robert M. Capie 20 Stowe Ave., Babylon, New York (Harborfields Junior High School, Taylor Ave., Greenlawn, New York)
Mrs. Janice T. Carter 611 E. College, Bainbridge, Ga. (Bainbridge High School, Bainbridge, Ga.)
Mr. Edward E. Chaney, Sr. 113 Croydon Court, Silver Spring, Md. (Broome Junior High, Twinbrook Pkwy, Rockville, Md.)
Mr. Robert J. Cramer Box 84 Red Creek, N. Y. (Lyons Central High School, Lyons, N.Y.)
Mr. Joseph J. DeLucia 158 Rollstone Ave., West Sayville, N. Y. (J. W. Young High School, 200 Snedecor Ave., Bayport, N.Y.)
Mr. Myron Dembrow 14 Washington St., Akron, N. Y. (Akron Central High School, Bloomingdale Ave., Akron, N. Y.)
Mr. James R. DeVries 527 S. 2nd St., Montrose, Colo. (Montrose Junior High, 500 S. 12th, Montrose, Colo.)
Mr. Dante DiFiore 6 Kent Place, Amityville, N. Y. (Calhoun High School, State St., Merrick, N. Y.)
Mr. Franklin D. R. Dixon 431 Valley Ave., S.E., Washington 20, D.C. (Banneker High School, Loveville, Md.)
~~Mr. Wallace E. Einvald~~ 8344 N. Santa Monica Blvd., Milwaukee 17, Wis. (Fox Point School, 7241 N. Longacre Rd., Milwaukee 17, Wis.)
Mr. M. Michael Ferrara 3238 Cherrywood Drive, Wantagh, N. Y. (Seaford Junior-Senior High School, Seamans Neck Rd., Seaford, N.Y.)
Mr. Pasquale V. Gazzara 134-41 57th Ave., Flushing 55, N.Y. (Yonkers Board of Education, School #8, 138 S. Broadway, Yonkers, N.Y.
Mr. Hosea Gibbs, Jr. Route 2, Box 236, Pamplico, S.C. (Stuckey High, Johnsonville, S.C.)
Mr. William E. Gilroy 403 Ferndale Court, Copiague, L.I., New York (Copiague Junior High School, 2650 Great Neck Rd., Copiague, L.I., New York).
Mr. John S. Heck 104 Wampler Rd., Baltimore 20, Md. (Golden Ring Junior High, Phila. at Golden Ring Rd., Baltimore 6, Md.)
Mr. Clifton P. Hensler 5214 Fredcrest Rd., Baltimore 29, Md. (Dundalk Junior High, Yorkway & Dunmanway, Baltimore 22, Md.)
Mrs. Peggy L. Jackson 2909 - 13th St., N.E., Washington 17, D.C., (Stuart Junior High, 4th St. at E., N.E., Washington, D.C.)
Mr. Joseph F. Koterwas 8401 Coco Road, Baltimore 6, Md. (Kenwood Senior High School, Stemmers Run Rd. and Marlyn Ave., Baltimore 21, Md.)
Mrs. Josephine F. Koterwas 8401 Coco Rd., Baltimore 6, Md. (Stemmers Run Junior High, Stemmers Run Rd., Baltimore 21, Md.)

Mr. Irwin S. Lamson 114 Grande Rd., E. Hartford, Conn. (Union School, Church St., Windsor Locks, Conn.)
Mr. Athel Q. Liggins 4521 9th St., N.W., Washington 11, D. C. (Terrell Junior High, 1st. & Pierce Sts., N.W., Washington, D.C.)
Mr. Ivor J. Margerison 58-30 43rd Ave., Woodside 77, N.Y. (Hastings High, Mt. Hope Blvd., Hastings-on-Hudson, N. Y.)
Mr. Robert E. Martini 8318 Quentin St., Hyattsville, Md. (Charles Carroll Junior High School, Lamont & Westbrook Dr., Hyattsville, Md.)
Mr. Walter W. Mehlferber, Jr. 5176 Park Ave., Bethel Park, Pa. (Bethel Junior High, 5171 Park Ave., Bethel Park, Pa.
Mr. Terence J. Mills R. 1, Box 156B, Coal Valley, Ill. (Calvin Coolidge Junior High, 3430 23rd Ave., Moline, Ill.)
Mr. Somerville Parker 3440 Ordway St., Washington 16, D.C. (St. Albans School, Mount St. Alban, Washington 16, D.C.)
Mr. C. Lloyd Penrod Route 1, Hagerstown, Md. (Mt. Aetna Academy, Route 1, Hagerstown, Md.)
Mr. Russell A. Purnell 667 Beechwood Ave., Pottstown, Penna. (Owen J. Roberts High School, R.D. 1, Pottstown, Penna.)
Mr. Richard M. Rackovan 364 E. 161 St., Cleveland 10, Ohio (Forest Park Junior High, 27000 Elinore Ave., Euclid, Ohio)
Mr. Byron N. Rudinsky 1512 Union St., Brooklyn, N.Y. (Hicksville Junior High School, Hicksville, N.Y.)
Sister M. Donald Ignatius Schisler, O.S.F. 374 E. Main St., Lansdale, Penna. (Lansdale Catholic High, Lansdale, Penna.)
Mr. Larry A. Sheets 2700 N. Washington, Kokomo, Indiana (Pettit Park School, 901 W. Havens, Kokomo, Ind.)
Mr. Cyrus F. Strever Box 34, Endwell, N. Y. (C. Fred Johnson School, Corliss Ave., Johnson City, N.Y.)
Mr. Warren C. Sylvester 1311 Mantle St., Baltimore 34, Md. (Hereford Junior-Senior High, Parkton, Md.)
Mr. Joseph E. Urban 21 Manor Ave., Baltimore 6, Md. (Mergenthaler School, Hillen Rd. and 35th St., Baltimore 18, Md.)
Mr. Clayton E. Van Alstyne 3 Van Buren Drive, Kinderhook, N. Y. (Ichabod Crane Central, Valatie, N.Y.)

REQUEST FOR INFORMATION CONCERNING STIPEND APPLICATIONS, OFFERS, & ACCEPTANCES IN 1963 SUMMER INSTITUTES

Budget Bureau No. 99-R113.3
Approval Expires January 15, 1966

NAME OF HOST INSTITUTION	DIRECTOR
Georgetown Univ.	M. P. Thekackara S J
SERIAL NUMBER OF INSTITUTE E 2/30131 (PLEASE COMPLETE)	**DATE OF REPLY** 4. 24. 63

Write answers in the appropriate column(s) at the right. *(If your institute was granted stipends for high school teachers and college teachers, please supply answers for the high school level and college level separately. For each of the following questions please list supervisors, foreign teachers, etc., in the fourth column, and add appropriate labels.)*	HIGH SCHOOL TEACHERS	COLLEGE TEACHERS	ELEMENTARY PERSONNEL	OTHERS (Supervisors, Foreign Teachers, etc.) *(Please Specify)*
1. What was the approximate total number of completed applications submitted to your institute?	502			
2. What was the number of stipends granted to your institute by the Foundation?	40			
3. How many of your initial stipend offers were declined?	12			
4. How many acceptances of full stipends ($75 per week, plus allowances) have you received to date?	40			
What is the approximate eventual number of full stipends you would like to award for your institute from your present grant?	40			
5. How many acceptances of partial stipends (less than $75 per week, plus allowances) have you received to date?	0			
What is the approximate eventual number of partial stipends (less than $75 per week, plus allowances) you would like to award from your present grant?	0			
6. Do you need or would you like to receive additional applications at this time?	0			

NATIONAL SCIENCE FOUNDATION
Washington 25, D.C.
April 20, 1963

MEMORANDUM

TO: All Directors of 1963 Summer Institutes and Conferences

FROM: Program Directors for Summer Institutes and Conferences

SUBJECT: Request for Information Concerning Stipend Applications, Offers, and Acceptances in 1963 Summer Institutes and Conferences

A number of items of statistical information concerning the 1963 Summer Institutes are urgently needed for our guidance in preparing plans for future years. At your earliest convenience, please return one copy of this form with the requested information to the appropriate Program Director for Summer Institutes, National Science Foundation, Washington 25, D.C.

William E. Morrell

William E. Morrell
Director for Secondary Programs

Harold A. Iddles

Harold A. Iddles
Director for College and
Elementary Programs

(over)

Form Approved
Budget Bureau No. 99-R190.1

NATIONAL SCIENCE FOUNDATION
Institutes Program
DIRECTOR'S REPORT, PART I

HOST INSTITUTION: Georgetown University
DATE OF REPORT: July 29, 1963
HOST INSTITUTION ADDRESS: Washington 7, D. C.
DIRECTOR: Rev. M. P. Thekeekara, S.J.
PROPOSAL NO. E- 3/2/0131

TYPE OF PROGRAM: [X] SUMMER INSTITUTE [ ] CONFERENCE

MAJOR FIELD(S) COVERED IN INSTITUTE OR CONFERENCE *(i.e., Biology, Math, Earth Science)*: Physics

Dates Institute or Conference Held: FROM— 6/24 TO— 8/16

PART I.

Please complete each appropriate box	ELEMENTARY LEVEL GRADES 1 - 6	SECONDARY LEVEL GRADES 7 - 12	COLLEGE LEVEL *(includes Jr. C. & Technical Institutes)*	FOREIGN	OTHERS *(i.e., Summer School Students*	GRAND TOTAL
1. Approximate no. of completed applications received		502				
2. No. of offers made: a. full stipend		40				
b. partial stipend		1				
c. no stipend, tuition free						
d. Total		41				
3. No. of participants accepting and attending: a. full stipend		40				
b. partial stipend		1				
c. no stipend, tuition free						
d. no stipend - paying own tuition, fees, etc.						
e. Total		41				
4. Stipend quota allotted by NSF		40				

5. No. of participants living at home during Institute, receiving full stipend 5, partial stipend _____, no stipend but free tuition _____, no stipend, paying own tuition, etc. _____.
Total no. living at home during Institute 5

6. Approximate no. of applications distributed in response to requests 600.

7. Dependency allowances: No. awarded 109; average no. awarded per stipend *(no. allowances ÷ no. of stipends)*. 2.725

8. Travel allowances: (a) Total no. paid 40; (b) Average travel allowance *(amt. allowed ÷ no. of stipends)* $20.56

FOR SEQUENTIAL INSTITUTES ONLY

9. Total duration of your sequence: Summers _____ In-Service Years _____ Other _____

10. Distribution of participants:

Stage within sequence:	1st.	2nd.	3rd.	4th.	5th.	Other ( )	Total
No. of new participants							
No. of continuing participants							

NSF FORM 9C-33
APR 1963

SECTION B. NUMBER OF STIPEND HOLDERS BY STATE OR REGION

STATE	TOTAL STIPEND HOLDERS	STATE	TOTAL STIPEND HOLDERS	STATE	TOTAL STIPEND HOLDERS
Alabama		Michigan		Texas	
Alaska		Minnesota		Utah	
Arizona		Mississippi		Vermont	
Arkansas		Missouri		Virginia	
California		Montana		Washington	
Colorado	1	Nebraska		West Virginia	
Connecticut	2	Nevada		Wisconsin	
Delaware		New Hampshire		Wyoming	
Dist. of Columbia	3	New Jersey		TOTAL	
Florida		New Mexico		U.S. Teachers Overseas *(fill in name of country below)*	
Georgia	1	New York	13		
Hawaii		North Carolina			
Idaho		North Dakota			
Illinois	1	Ohio			
Indiana	1	Oklahoma			
Iowa		Oregon		Foreign Participants *(fill in name of country below)*	
Kansas		Pennsylvania	4		
Kentucky		Puerto Rico			
Louisiana		Rhode Island			
Maine		South Carolina			
Maryland	1	South Dakota			
Massachusetts	1	Tennessee		GRAND TOTAL	41

SECTION C. STAFF

NAME *(list actual staff members)* *(last, first, middle initial)*	% OF FULL TIME DUTIES DEVOTED TO INST.	BACKGROUND INFORMATION					
		HIGHEST DEGREE	FIELD	DATE AWARDED	INSTITUTION AWARDING DEGREE	HOME INSTITUTION	RANK AND DEPARTMENT
1. Director: M. P. THEKAEKARA	80	Ph.D	Physics	1956	Johns Hopkins	Georgetown	Assoc. Prof
☒ Same as proposed; ☐ Different from proposed % of Institute time spent in teaching ____%; administration ____%.							
2. Associate Director *(if any)*:							
☐ Same as proposed; ☐ Different from proposed % of Institute time spent in teaching ____%; administration ____%.							

SECTION C (Continued)

NAME (last, first, middle initial)	% OF FULL-TIME DUTIES DEVOTED TO INST.	BACKGROUND INFORMATION					
		HIGHEST DEGREE	FIELD	DATE AWARDED	INSTITUTION AWARDING DEGREE	HOME INSTITUTION	DEPARTMENT
3. Instructors *(same as proposed)*							
Davassy THATTIL	100%	M.S.	Phys.	1963	Georgetown	Georgetown	Physics
Donald McGibney	100%	M. S.	Phys.	1960	Marquette	Georgetown	Physics
Ralph Regalbuto	50%					Georgetown	Physics
4. Instructors *(different from proposed)*							
R. S. Henderson	50%	Ph.D.	Phys.	1955	Harvard	Georgetown	Physics

SECTION D. Courses

DESCRIPTIVE TITLE (*List courses actually offered, by department*)	LAST NAME OF INSTRUCTOR	TYPE OF COURSE (*check one*)			REGISTRATION DATA			
		Specifically designed for institute participants	Regular course with special sections reserved for institute participants	Regular course with institute participants in usual summer session sections	Number of stipend holders (*full and partial*)	Number of other Teachers	Number of other Students	Total Enrollment
1. SAME AS PROPOSED:								
Physics I	~~Ens~~ HENDERSON	X			41			41
Physics II	THEKAEKARA	X			41			41
2. DIFFERENT FROM PROPOSED (*explain briefly: THE NATURE OF THE CHANGE, WHY IT WAS NECESSARY, AND WHEN IT OCCURRED*):								

NATIONAL SCIENCE FOUNDATION - INSTITUTES PROGRAM

DIRECTOR'S REPORT, PART II

PART II

HOST INSTITUTION		
Georgetown University	X ☐ INSTITUTE ☐ CONFERENCE	
ADDRESS	MAJOR FIELDS	
Washington 7, D. C.	Physics	
DIRECTOR	E-3-2 / 0131	DATE OF REPORT
Rev. M. P. Thekaekara		Dec. 31, 1963

SECTION A. SPECIAL LECTURERS

NAME (last, first, middle initial)	HOME INSTITUTION, RANK AND DEPARTMENT	NO. OF DAYS WITH INSTITUTE	AMOUNT OF HONORARIUM	AMT. OF TRAVEL & SUBSISTENCE ALLOWANCE
1. SAME AS PROPOSED:				
Rev. M. P. Thekaekara	Assoc. Prof. Georgetown	8 weeks	2500.00	0
Devassy Thattil	Instructor	8 weeks	1000.00	0
Donald McGibney	Instructor	8 weeks	1000.00	0
Ralph Regalbuto	Practical Physicist	8 weeks	800.00	0
2. DIFFERENT FROM PROPOSED:				
R. S. Henderson	Assoc. Prof. Georgetown	4 weeks	1000.00	0

PART II SECTION B. PARTICIPANTS

1. No. of stipend holders who withdrew from Institute:

   a. before Institute began 0 b. during Institute 0 c. Total who withdrew 0

2. No. of participants (if any) receiving degree through Institute:

a. Type of degree	b. No. of participants who completed degree this term.	c. No. practically finished who will complete degree without additional Inst.
None	None	None

Please complete the following—use separate sheets as necessary:

See separate sheet

1. What were the best features of this Institute?
2. What were the weakest features of this Institute?
3. Discuss problems encountered in the Institute, and measures taken *(if any)* to solve them.
4. If any Institute evaluation projects were undertaken, please describe them briefly and summarize any significant results that were obtained. *(Please note that the National Science Foundation has not asked that any such projects be undertaken.)*
5. What impact *(if any)* is the institute program having on the host college or university, particularly on its activities in the field of teacher training?
6. How could the Institute program be made more beneficial to the host institution?
7. Please record your recommendations toward strengthening the national program of Institutes.
8. Please discuss any new ideas, new approaches or new programs whereby NSF could contribute toward strengthing any aspect of science education.
9. Please fell free to add any additional comments you wish.
10. Attach a participant roster to this report furnishing name, mailing address and teaching address of each participant in your Institute or Conference.

1. Best Features of the Institute

We attempted to give a rather rigorous course in classical and modern physics.

The lectures and problem sessions were planned so that the teachers were obliged to put in a good deal of effort towards mastering the subject.

The mathematical parts were difficult and considerable help was available to help the teachers understand and appreciate these.

The visits to the laboratories gave the teachers a familiarity with the vast research effort in the nation's capital. The visit to Goddard Space Flight Center was particularly interesting.

2. Weakest Features of the Institute

Many of the teachers had expected a course in physics at the same level as those given in teachers' colleges, merely descriptive, without any mathematics or any problem-solving. It would seem that some had expected an eight-weeks vacation at government expense, and a grade A with graduate credit at the end for merely attending the lectures. These few racted in a very surprising fashion when they realized that we were attempting to give a first year college level course.

That the main lectures were given by two professors was a weak feature. There would have been better continuity if the same professor had continued for both sessions.

3. Problems Encountered

Some of the teachers did not at all like the exams and quizzes which we thought essential to the course. We tried to bring down the level of the course. However, if credits were to be given by the Dept. of Physics, we could not honestly bring the level too far below what the Department is accustomed to.

The final exam scheduled for Aug. 16 proved to be a serious problem. A few would have liked that exam to be cancelled and the Institute to be terminated on Aug. 14. Here we did not yield to the pressures put on us. Perhaps we should not have been so unyielding.

Too many of the teachers were living off-campus. The schedule we had proposed was more suited for a group living on campus.

4. Evaluation of the Institute

We distributed a questionnaire for purposes of evaluation. The results were more or less as anticipated. Most of the participants were enthusiastic. Even those who had complained now and then that the problems were difficult said they profited a great deal from the course.

5. Impact on the University

Georgetown has no teacher training program. The administration begins to realize that it is beneficial to the whole academic program of the University to contribute to a certain extent towards teacher training. Care should be taken lest an entirely different standard be introduced for the grades and credits which are given for the physics courses designed for the teachers.

LIST OF PARTICIPANTS

Mr. Thomas E. Antonicci 218 S. 8th St., Lebanon, Pa. (Lebanon Catholic, 14th & Chestnut, Lebanon, Penna.)
Mr. William L. Bowen North Street, Hebron, Conn. (Rham High, Wall Street, Hebron, Conn.)
Mr. Alfred C. Bruzda 2908-D Dunbrin Rd., Baltimore 22, Md. (Holabird Junior High, 1701 Delvale Ave., Baltimore 22, Md.)
Mr. Allen H. Bryant 1202 Newfield Rd., Baltimore 7, Md. (Catonsville Junior High School, 106 Bloomsbury Ave., Baltimore 28, Md.)
Mr. John F. Burke 36 East Mt. St., Worcester, Mass. (Forest Grove Junior High, 495 Grove St., Worcester, Mass.)
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Mr. Robert M. Capie 20 Stowe Ave., Babylon, New York (Harborfields Junior High School, Taylor Ave., Greenlawn, New York.)
Mrs. Janice T. Carter 611 E. College, Bainbridge, Ga. (Bainbridge High School, Bainbridge, Ga.)
Mr. Edward E. Chaney, Sr. 113 Croydon Court, Silber Spring, Md. (Broome Junior High, Twinbrook Pkwy, Rockville, Md.)
Mr. Robert J. Cramer Box 84 Red Creedk, N. Y. (Lyons Central High School, Lyons N.Y.)
Mr. Joseph J. DeLucia 158 Rollstone Ave., West Sayville, N. Y. (J. W. Young High School, 200 Snedecor Ave., Bayport, N. Y.)
Mr. Myron Dembrow 14 Washington St., Akron, N. Y. (Akron Central High School, Bloomingdale Ave., Akron, N. Y.)
Mr. James R. DeVries 527 S. 2nd St., Montrose, Colo. (Montrose Junior High 500 S. 12th, Montrose, Colo.)
Mr. Dante DiFiore 6 Kent Place, Amityville, N. Y. (Calhoun High School, State St., Merrick, N. Y.)
Mr. Franklin D. R. Dixon 431 Valley Ave., S. E., Washington, D. C. (Banneker High School, Loveville, Md.)
Mr. M. Michael Ferrara 3238 Cherrywood Drive, Wantagh, N. Y. (Seaford Junior-Senior High School, Seamans Neck Rd., Seaford, N. Y.)
Mr. Pasquale V. Gazzara 134-41 57th Ave., Flusing 55, N. Y. (Yonkers Board of Education, School #8, 138 S. Broadway, Yonkers, N. Y.)
Mr. Hosea Gibbs, Jr. Route +, Box 236, Pamplico, S. C. (Stuckey High, Johnsonville, S. C.)
Mr. William E. Gilroy 403 Ferndale Court, Copiague, L. I., New York (Copiague Junior High School, 2650 Great Neck Rd., Copiague, L. I., New York)
Mr. John S. Heck 104 Wampler Rd., Baltimore 20, Md. (Golden Ring Junior High, Phila. at Golden Ring Rd., Baltimore 6, Md.)
Mr. Clifton P. Hensler 5214 Fredcrest Rds., Baltimore 29, Md. (Dundalk Junior High, Yorkway & Dunmanway, Baltimore 22, Md.)
Mrs. Peggy L. Jackson 2909 - 13th St., N. E., Washington 17, D. C., (Stuart Junior High, 4th St. at E., N. E., Washington, D. C.)
Mr. Joseph F. Koterwas 8401 Coco Road, Baltimore 6, Md. (Kenwood Senior High School, Stemmers Run Rd. and Marlyn Ave., Baltimore 21, Md.)
Mrs. Josephine F. Koterwas 8401 Coco Rd., Baltimore 6, Md. (Stemmers Run Junior High, Stemmers Run Rd., Baltimore 21, Md.)
Mr. Irwin S. Lamson 114 Grande Rd., E. Hartford, Conn. (Union School, Church St., Windsor Locks, Conn.)
Mr. Athel Q. Liggins 4521 9th St., N. W. Washington 11, D. C. (Terrell Junior High, 1st. & Pierce Sts., N. W., Washington, D. C.)
Mr. Ivor J. Margerison 58-30 43 Ave., Woodside 77, N. Y. (Hastings High, Mt. Hope Blvd., Hastings-on-Hudson, N. Y.)

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