Dr-2022-23 5147

FILE NO. SRG/2022/002191

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board 3rd & 4th Floor, Block II Technology Bhavan, New Mehrauli Road New Delhi - 110016

Subject: Financial Sanction of the research project titled Tuning the Thermal and Electrical Conductivity of BaZr\$3 Dated: 19 September, 2022 Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells under the guidance of Dr. Anjani Pandurang Nagvenkar, School of Chemical Sciences, Goa University, Taleigao, North goa, Goa-403206 -Release of 1st grant.

Sanction of Science and Engineering Research Board (SERB) is hereby accorded to the above mentioned project at a total cost of Rs. 3231712/- (Rs. Thirty Two Lakh Thirty One Thousand Seven Hundred and Twelve Only) with break-up of Rs. 1600000/- under Capital (Non-recurring) head and Rs.1631712/- under General (Recurring) head for a duration of 24 months. The items of expenditure for which the total allocation of Rs. 3231712/- has been approved are given below:

The following budget may be considered for Goa University, Taleigao

S. No	Head	
A	Non-recurring	Total (in Pa
1	Equipment -> Minor Equipments -> Thermal Conductivity Meter	Total (in Rs.)
A'	Total (Non-Recurring)	
В	Recurring Items	447
1	Recurring - I: (Research Personnel) Recurring - II: (Consumables, Travel, Contingencies) Recurring - III: Scientific Social Responsibility	877920
2	Recurring - IV : (Overhead Charges)	450000
3'	Total (Recurring)	10000
;	Total cost of the project (A' + B')	293792
	and the broject (A, + B,)	1631712
		3231712

- 2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at website (
- 3. Overhead expenses are meant for the host Institute towards the cost for providing infrastructural facilities and general administrative support etc. including benefits to the staff employed in the project.
- 4. While providing operational flexibility among various subheads under head Recurring-II, it should be ensured that not
- 5. Budget sanctioned under Scientific Social Responsibility (SSR) is meant only for activites enlisted under SSR norms
- 6. As per rule 211 of GFR, the accounts of project shall be open to inspection by sanctioning authority/audit whenever the institute is called upon to do so.
- 7. The sanctioned equipment would be procured as per GFR and its disposal of the same would be done with prior
- 8. The institute will furnish to the SERB, separate Utilization certificate (UCs) financial year wise to the SERB for Recurring (Grants-in-aid General) & Non-Recurring (Grants for creation of capital assets) and an audited statement of accounts pertaining to the grant immediately after the end of each financial year.
- 9. The institute will maintain separate audited accounts for the project. A part or whole of the grant must be kept in an interest earning bank account which is to be reported to SERB. The interest thus earned will be treated as credit to the institute to be adjusted towards further installment of the grant.
- 10. The research personnel sanctioned in the project, if any is co-terminus with the duration of the project and SERB will have no liability to meet the fellowship and salary of supporting staff if any, beyond the duration of the project
- 11. The institute may refund any unspent balance to SERB by means of a Demand Draft favoring "FUND FOR SCIENCE
- 12. The project File no. SRG/2022/002191 should be mentioned in all communications arising from the above project. The organization/institute/university should ensure that the technical support/financial assistance provided to them by

SERB should invariably be highlighted/ acknowledged in their media releases as well as in bold letters in the opening paragraphs of their Annual Report.

- 13. In addition, the investigator/host institute must also acknowledge the support provided to them in all publications, patents and any other output emanating out of the project/program funded by SERB.
- 14. Sanction order for release of funds under a) Non-recurring and b) Recurring will be issued separately depending on the availability of funds. The project become operational from the day the first release of grant received by the

(Dr. S. V. Prasanna) Scientist prasanna@serb.gov.in

To, Under Secretary SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, Illrd Floor I.P. Estate, Delhi-110002			
2.	Sanction Folder, SERB, New Delhi.			
3.	File Copy			
4.	Dr. Anjani Pandurang Nagvenkar School of Chemical Sciences Goa University, Taleigao, North goa, Goa-403206 Email: anjani@unigoa.ac.in Mobile: 919049244139 (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in .)			
5,	Registrar, Goa University, Goa University, Taleigao (Receipt of Grant may be intimated by name to the undersigned)			

of of

(Dr. S. V. Prasanna) Scientist prasanna@serb.gov.in FILE NO. SRG/2022/002191-C

SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

(A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board 3rd & 4th Floor, Block II Technology Bhavan, New Mehrauli Road New Delhi - 110016

Dated: 19 September, 2022

Subject: Research project entitled Tuning the Thermal and Electrical Conductivity of BaZrS3 Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells under the guidance of Dr. Anjani Pandurang Nagvenkar, School of Chemical Sciences, Goa University, Taleigao, North goa, Goa-403206.

- 1. In continuation of SERB's sanction order No. SRG/2022/002191 dated 19 September, 2022, sanction of the competent authority is hereby accorded to the payment of a sum of Rs.1600000/- under 'Grants-in-aid Capital' to Goa University, Taleigao, North Goa, Goa-403206 being the grant for the financial year 2022-2023 for implementation of the above said project.
- 2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 19 September, 2022.
- 3. As this is the first grant being released under 'Grants-in-aid Capital' for the project, no previous U/C is required.
- 4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Start-up Research Grant (Capital).(EC Chemical Sciences)
- 5. The Sanction has been issued with the approval of the competent authority on 16 September, 2022 and vide Diary No. SERB/F/4854/2022-2023 dated 16 September, 2022.
- 6. The release amount of Rs. 1600000/- (Rupees Sixteen Lakh only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	UNIGOA
Account Name	Goa University
	10664493609
Bank Name & Branch	State Bank of India State Bank of India University Branch, Goa University Complex, Taleigao Plateau, Goa 403206
	SBIN0004311
Email id of A/C Holder	registrar@unigoa.ac.in
Email id of PI	anjani@unigoa.ac.in

(Dr. S. V. Prasanna) Scientist prasanna@serb.gov.in

To,

Under Secretary SERB, New Delhi

Copy forwarded for information and necessary action to:

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB, New Delhi.
3.	File Copy
4.	Dr. Anjani Pandurang Nagvenkar School of Chemical Sciences Goa University, Taleigao, North goa, Goa-403206 Email: anjani@unigoa.ac.in Mobile: 919049244139 (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in.)
5.	Registrar, Goa University, Goa University, Taleigao (Receipt of Grant may be intimated by name to the undersigned)

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' (Dr. S. V. Prasanna) Scientist prasanna@serb.gov.in

FILE NO. SRG/2022/002191-G. SCIENCE & ENGINEERING RESEARCH BOARD(SERB)

A statutory body of the Department of Science & Technology, Government of India)

Science and Engineering Research Board 3rd & 4th Floor, Block II

Technology Bhavan, New Mehrauli Road New Delhi - 110016

Dated: 19 September, 2022

ORDER

Subject: Research project entitled Tuning the Thermal and Electrical Conductivity of BaZrS3 Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells under the guidance of Dr. Anjani Pandurang Nagvenkar, School of Chemical Sciences, Goa University, Taleigao, North goa, Goa-403206.

- 1. In continuation of SERB's sanction order No. SRG/2022/002191 dated 19 September, 2022, sanction of the competent authority is hereby accorded to the payment of a sum of Rs.820856/- under 'Grants-in-aid General' to Goa University, Taleigao, North Goa, Goa-403206 being the grant for the financial year 2022-2023 for implementation of the above said project.
- 2. Sanction of the grant is subject to the conditions as detailed in Terms & Conditions available at the website (www.serb.gov.in) and as mentioned in the sanction order of even number dated 19 September, 2022.
- 3. As this is the first grant being released under 'Grants-in-aid General' for the project, no previous U/C is required.
- 4. The expenditure involved is debitable to Fund for Science & Engineering Research (FSER) This release is being made under Start-up Research Grant (General) (EC Chemical Sciences)
- 5. The Sanction has been issued with the approval of the competent authority on 16 September, 2022 and vide Diary No. SERB/F/4855/2022-2023 dated 16 September, 2022...
- 6. The release amount of Rs. 820856/- (Rupees Eight Lakh Twenty Thousand Eight Hundred and Fifty Six only) will be drawn by the Under Secretary of the SERB and will be disbursed by means of RTGS transaction as per their Bank details given below:

PFMS Unique Code	UNIGOA			
Account Name	Goa University			
Account Number	10664493609			
Bank Name & Branch	State Bank of India State Bank of India University Branch, Goa University Complex, Taleigao Plateau, Goa 403206			
IFSC/RTGS Code	SBIN0004311			
Email id of A/C Holder	registrar@unigoa.ac.in			
Email id of PI anjani@unigoa.ac.in				

Gr. S. V. Prasanna) Scientist prasanna@serb.gov.in

To, Under Secretary SERB, New Delhi

Copy forwarded for information and necessary action to: -

1.	The Principal Director of Audit, A.G.C.R.Building, IIIrd Floor I.P. Estate, Delhi-110002
2.	Sanction Folder, SERB , New Delhi.
3,	File Copy
4.	Dr. Anjani Pandurang Nagvenkar School of Chemical Sciences Goa University, Taleigao, North goa, Goa-403206 Email: anjani@unigoa.ac.in Mobile: 919049244139 (Start date of the project may be intimated by name to the undersigned. For guidance, terms & Conditions etc. Please visit www.serb.gov.in .)
5.	Registrar, Goa University, Goa University, Taleigao (Receipt of Grant may be intimated by name to the undersigned)

of y

(Dr. S. V. Prasanna) Scientist prasanna@serb.gov.in

INFORMATION OF SANCTIONED PROJECT AND APPROVAL FOR IMPLEMENTATION (REQUEST FOR VICE CHANCELLOR'S APPROVAL)



- 1. Project Title.: Tuning the Thermal and Electrical Conductivity of of BaZrS₃ Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells
- 2. Sanction letter no. : SRG/2022/002191
- 3. Funding agency: Science & Engineering Research Board (SERB), DST
- 4. Department: School of Chemical Sciences
- 5. Principal Investigator: Dr. Anjani P. Nagvenkar
- 6. Co-Investigator (if any): N/A
- 7. Duration of Project: Two years
- 8. Total amount of the project: Rs. 32,31,712/-
- 9. Sanctioned Sub Heads and amount:
 - a) Equipments: Rs. 16,00,000/-
 - b) Manpower: Rs. 8,77,920
 - c) Chemicals/Consumables: Rs. 3,00,000/-
 - d) Travel: Rs. 50,000/-
 - e) Contingency: Rs. 1,00,000/-
 - c) Scientific Social Responsibility: Rs. 10,000/-
- 10. Overhead: Rs. 2,93,792/-
- 11. Number and Designation of research staff: One Project Associate
- 12. Terms and Conditions
 - a) Dates of submission of Report: After the end of financial year
 - b) Dates for submission of utilization certificate: After the end of financial year
- 13. Yearwise break-up of sanctioned amount: Detailed sheet enclosed (C/42)
- 14. Plan of utilization of sanctioned grant over the year: Detailed sheet enclosed (2/40)

Project Investigator

27/09/22

Date: 27/09/22

Dean, SCS

Date: 27/09/2012

Yearwise break-up of sanctioned amount:

	Year 1			
Sr. No.	Head	Amount		
1.	Equipments	Rs. 16,00,000/.		
2.	Manpower	Rs. 4,38,960/-		
3.	Consumable	Rs. 1,50,000/-		
4.	Travel	Rs. 25,000/-		
5.	Contingency	Rs. 50,000/-		
6.	Scientific Social Responsibility	Rs. 10,000/- Rs. 1,46,896/-		
7.	Overhead Charges			
	Total (Year 1)			
	Year 2	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
1.	Manpower	Rs. 4,38,960/-		
2.	Consumable	Rs. 1,50,000/-		
3.	Travel	Rs. 25,000/-		
4.	Contingency	Rs. 50,000/-		
5.	Overhead Charges	Rs. 1,46,896/-		
	Total (Year 2)	Rs. 8,10,856/-		
	Total Budget Approved	Rs. 32,31,712/-		

(= -

Plan of Utilization of sanctioned grant over the years

S. No	Head	Total (in Rs.)
A	Non-recurring	
1	Equipment -> Minor Equipments -> Thermal Conductivity Meter	1600000
A'	Total (Non-Recurring)	1600000
В	Recurring Items	
1	Recurring - I: (Research Personnel) Recurring - II: (Consumables, Travel, Contingencies) Recurring - III: Scientific Social Responsibility	877920 450000 10000
2	Recurring - IV : (Overhead Charges)	293792
B'	Total (Recurring)	1631712
C	Total cost of the project (A' + B')	3231712

The non-recurring equipment budget will be used to purchase a major instrument Thermal Conductivity meter and minor equipment, a probe sonicator. Research personnel, one project associate will be appointed with approved salary as per the DST norms and thus will be paid Rs. 31,000 + Rs. 5,580 (18% HRA) per month for the duration of two years. Consumable and contingency budget will be used for purchase of chemicals, minor equipments and other lab accessories. A certain amount of overhead charges will be used for building/renovating the lab space provided.

GFR 12 - A [(See Rule 238 (1))] UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-2023 in respect of RECURRING

as on 31st March 2023 to be submitted to SERB

Is the UC Audited (Provisional/Audited) (To be given separately for each financial year ending on 31st March)

- 1. Name of the grant receiving Organization : Goa University
- 2. Name of Principal Investigator(PI) : Dr. Anjani P. Nagvenkar
- 3. SERB Sanction order no. & date: SRG/2022/002191 dated 24 September 2022
- 4. Title of the Project: Tuning the Thermal and Electrical Conductivity of BaZrS3 Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells
- 5. Name of the SERB Scheme : Start-up Research Grant (SRG) (CRG/NPDF/ECR.....etc.)
- 6. Whether recurring or non-recurring grants : RECURRING
- 7. Grants position at the beginning of the Financial year

Carry forward from previous financial year

NIL

Others, If any (ii)

NIL

Total (iii)

NIL

8. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unsperit Balance of Grants received previous years [figure as at SI.	1	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expenditure incurred	Closing Balances (5-6)
No. 7(iii)]	2	3	4		5	6	7	
****			Sanction No.(i)	Date (ii)	Am oun t(iii)	è		
NIL	NIL	NIL	SRG/2022/002191	24/09/2022		Rs. 8,20,856	Rs. 4,77,741	Rs. 3,43,115

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total		
Rs. 4,77,741	NIL	Rs. 4,77,741		

Details of grants position at the end of the year

(i) Balance available at end of financial year : Rs. 3,43,115 /- /

(ii) Unspent balance refunded to SERB (If any) : Committed funds

Balance (Carried forward to next financial year) if applicable: Rs. 3,43,115 /-/

GFR 12 - A UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-2023 in respect of RECURRING as on 31st March 2023 to be submitted to SERB

Is the UC Audited (Provisional/Audited) (To be given separately for each financial year ending on 31st March)

Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures depicted above tally with the audited figures mentioned in financial statements/accounts.

There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets (ii) against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.

To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing (iii) instructions and scheme guidelines.

The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not (iv)

The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was (v) intended to operate.

The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and (vi) terms and conditions of the grants-in-aid.

It has been ensured that the physical and financial performance under SRG (CRG/NPDF/ECR.....etc.) (Name of the scheme (vii) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.

The utilization of the fund resulted in outcomes given at Annexure - II duly enclosed (to be formulated by the Ministry/Department (viii) concerned as per their requirements/specifications.)

(ix) Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries is enclosed at Annexure -II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

Signature of PI:

aguetae Dr. Vanita M. Patil Gaude

Signature with Seal :.

Chief Finance Officer (Head of Finance)

Goa University **Taleiga**o Plateau. Goa - 403 206

Signature with Seal..... ishnus: Name: .P.xof.. Madkasni

Head of Organisation

(Strike out inapplicable terms)

Finance Officer BoaUnwestw ateigaco (Patatean 44003322066

GFR 12 - A [(See Rule 238 (1))] UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-2023 in respect of NON-RECURRING as on 31st March 2023 to be submitted to SERB

Is the UC Audited (Provisional/Audited)

(To be given separately for each financial year ending on 31st March)

- 1. Name of the grant receiving Organization : Goa University
- 2. Name of Principal Investigator(PI) : Dr. Anjani P. Nagvenkar
- 3. SERB Sanction order no. & date: SRG/2022/002191 dated 24 September 2022
- 4. Title of the Project: Tuning the Thermal and Electrical Conductivity of BaZrS3 Chalcogenide Perovskite as Electrode Material for High Power Generation in Thermogalvanic Cells
- 5. Name of the SERB Scheme : Start-up Research Grant (SRG) (CRG/NPDF/ECR......etc.)
- Whether recurring or non-recurring grants : NON-RECURRING
- 7. Grants position at the beginning of the Financial year

Carry forward from previous financial year

NIL

Others, If any (ii)

NIL

Total (iii)

NIL

8. Details of grants received, expenditure incurred and closing balances: (Actuals)

Unspent Balance of Grants received previous years [figure as at Sl. No. 7(iii)]	Interest Earned thereon	Interest deposited back to the SERB	Grants received during the year			Total Available funds (1+2-3+4)	Expendit ure incurre d	Closing Balances (5-6)
1	2	3	4			5	6	7
			Sanction No.(i)	Date (ii)	Am oun t(iii)			
NIL	NIL	NIL	SRG/2022/002191	24/09/2022		Rs. 16,00,000	NIL	NIL

Component wise utilization of grants:

Grants-in-aid- General	Grant-in-aid-creation for capital assets	Total	
NIL	NIL	NIL	

Details of grants position at the end of the year

(i) Balance available at end of financial year

: Rs. 16,00,000 /-

(ii) Unspent balance refunded to SERB (If any) : Committed funds

(iii) Balance (Carried forward to next financial year) if applicable: Rs. 16,00,000 /-

C/64

GFR 12 - A UTILIZATION CERTIFICATE (UC) FOR THE YEAR 2022-2023 [(See Rule 238 (1))] in respect of NON-RECURRING as on 31st March 2023 to be submitted to SERB

Is the UC Audited (Provisional/Audited) (To be given separately for each financial year ending on 31st March)

Certified that I have satisfied that the conditions on which grants were sanctioned have been duly fulfilled/are being fulfilled and that I have exercised following checks to see that the money has been actually utilized for the purpose for which it was sanctioned:

The main accounts and other subsidiary accounts and registers (including assets registers) are maintained as prescribed in the (i) relevant Act/Rules/Standing instructions (mention the Act/Rules) and have been duly audited by designated auditors. The figures

depicted above tally with the audited figures mentioned in financial statements/accounts.

- There exist internal controls for safeguarding public funds/assets, watching outcomes and achievements of physical targets (ii) against the financial inputs, ensuring quality in asset creation etc. & the periodic evaluation of internal controls is exercised to ensure their effectiveness.
- To the best of our knowledge and belief, no transactions have been entered that are in violation of relevant Act/Rules/standing (iii) instructions and scheme guidelines.
- The responsibilities among the key functionaries for execution of the scheme have been assigned in clear terms and are not (iv) general in nature.
- The benefits were extended to the intended beneficiaries and only such areas/districts were covered where the scheme was (v) intended to operate.
- The expenditure on various components of the scheme was in the proportions authorized as per the scheme guidelines and (vi) terms and conditions of the grants-in-aid.
- It has been ensured that the physical and financial performance under SRG (CRG/NPDF/ECR.....etc.) (Name of the scheme (vii) has been according to the requirements, as prescribed in the guidelines issued by Govt. of India and the performance/targets achieved statement for the year to which the utilization of the fund resulted in outcomes given at Annexure - I duly enclosed.
- The utilization of the fund resulted in outcomes given at Annexure II duly enclosed (to be formulated by the Ministry/Department (viii) concerned as per their requirements/specifications.)
- Details of various schemes executed by the agency through grants-in-aid received from the same Ministry or from other Ministries (ix) is enclosed at Annexure -II (to be formulated by the Ministry/Department concerned as per their requirements/specifications).

Date:

Place:

Financé Officer Goa University Taleigao Plateau, Goa - 403 206

Signature with Seal :..... Name: Dr. Vanita M. Patil Gaude

Chief Finance Officer (Head of Finance)

Goa University Taleigao Plateau, Goa - 403 206

Signature with Seal...,

Name: Prof. Vishnus

Nadkarni Head of Organisation

(Strike out inapplicable terms)

REOUEST FOR ANNUAL INSTALMENT WITH UP-TO-DATE STATEMENT OF EXPENDITURE

1. SERB Sanction Order No and date

: SRG/2022/002191

2. Name of the PI

3. Total Project Cost

: Dr. Anjani Pandurang Nagvenkar : Rs. 32,31,712

Revised Project Cost

(if applicable) 5

Date of Commencement

Statement of Expenditure <u>ن</u>

: 24 September 2022

(Month wise expenditure incurred during current financial year)

Expenditure incurred/committed	NIL	NIL	NIL	Rs. 21,240	Rs. 1,83,476	Rs. 86,530	Rs. 1.86.495
Month & year	September 2022	October 2022	November 2022	December 2022	January 2022	February 2022	March 2022

Grant received in each year:

: Rs. 24,20,856 1st Year

2nd Year þ.

. N/A N/A N/A

3rd Year ပ် ပ် ပဲ

Interest, if any

Total (a + b + c + d) : Rs. 24,20,856