

Open call for research project

Indo-Korea Science and Technology Center, Korea Institute of Science and Technology (KIST)

Control number: IKST/Research/2024-11/15112024

Indo-Korea Science and Technology (IKST), Bengaluru calls **proposals for commissioned research project** as below.

1. Classification: Research & Development (Investigation of the Topological Hall Effect (THE) in Magnetic Materials)

No.	Field	Title of project	Budget	Period	Note
1	Research	Investigation of the Topological Hall Effect (THE) in Magnetic Materials	Rs. 15,00,000	09/12/2024 ~08/12/2025	

2. Qualification and application

A. Qualification for application

- ① Ph.D. degree holder in related area

B. Period of tender: 18.11.2024 (Monday) ~ 30.11.2024 (Saturday)

C. Required documents

- ① Official letter (one copy, English)
- ② Project proposal (original two copies, English)

※ Email submission of above documents is mandatory to Brunda (91 9901202787, hr@ikst.res.in), parallel with direct or postal submission

D. Application

- Deadline: **17:30, 30.11.2024 (Sat)**

- Submission (Direct or Post)

- Address: 3rd Floor, NCC Urban Windsor, Opposite Jakkur Aerodrome, New International Airport Road, Yelahanka, Bangalore, Bangalore North, Karnataka, India 560 064

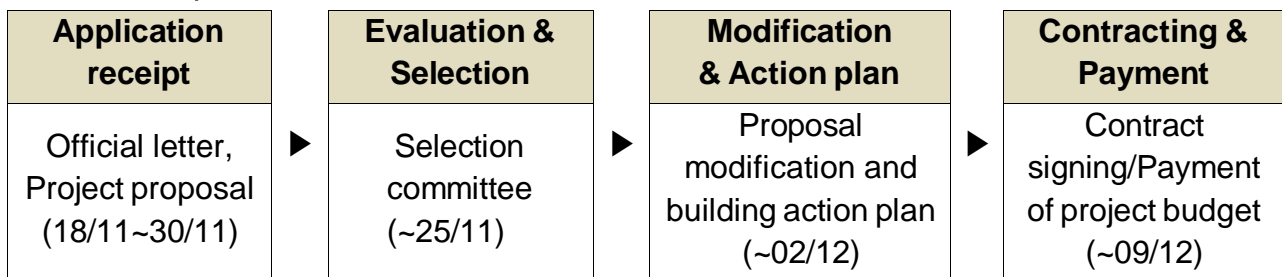
※ Please contact Brunda B V (+91 9901202787, hr@ikst.res.in) for any inquiry

- Attachments:
1. Selection and operation plan for research project
 2. Request for proposal
 3. Project proposal (format)
 4. Project result report (format). End.

Selection and operation plan for research project

1. Selection procedure and criteria

- Selection procedure



※ Selection procedure timeline is subject to changes depending on internal schedules

- Evaluation & Selection

- Method: Written and presentation evaluation
- Criteria
 - Fundamental qualification of institute and P.I.
 - Clarity of objectives, differentiation of performance strategy, feasibility of research contents against the budget
 - Creativity and innovativeness of objectives and contents, application availability of research results

- Modification & Action plan

- Modification and improvement of project proposal of final candidate
- Building an action plan such as interim review, regular meetings etc.

- Contracting & Payment

- Signing a commissioned survey research contract
- Major conditions/terms of contract
 - Objectives/Contents In final project proposal
 - Contract period: 02.12. 2024. ~ 01. 12. 2025 (1 year)
 - Payment: Advance (Inclusive tax, 100% of contracted amount, payment after contracting)

2. Result report

- Result reports (original two copies) submission within two months from the last date of research period.

3. Notice

- Selection result will be announced through email to individual(s)
- Duration for presentation evaluation is for 30 minutes (20 minutes for presentation and 10 minutes for Q&A)
- No documents will be returned after submission

Request for Proposal (RFP)

Title: Investigation of the Topological Hall Effect (THE) in Magnetic Materials

Abstract: The Topological Hall Effect (THE) is an emergent transport phenomenon crucial for detecting noncoplanar magnetic textures, which hold potential as memory and logic elements for future spintronic devices. THE arises from the interaction of conduction electrons with chiral, noncoplanar spin textures, leading to a real-space Berry phase and an additional Hall contribution. This RFP seeks proposals focused on advancing the understanding of THE in magnetic materials through both experimental and theoretical approaches. The outcomes will contribute to fundamental research in topological materials and drive innovation in spintronic technologies.

The proposed project is expected to achieve the following objectives:

Synthesize and Characterize Magnetic Materials:

Develop and investigate three-dimensional (e.g., PtMnGa, NiMnGa) and two-dimensional (e.g., Fe₃GeTe₂, Cr₂Te₃) magnetic materials. The synthesis will employ arc-melting and chemical vapor transport (CVT) methods, followed by detailed magnetization and magnetotransport measurements using the Physical Property Measurement System (PPMS).

Explore Noncoplanar Spin Textures and Local DMI:

Study the stabilization of Néel skyrmions and other topological spin textures in centrosymmetric systems due to local symmetry breaking induced by structural or atomic defects.

Micromagnetic Simulations of THE:

Conduct micro magnetic simulations to investigate the theoretical origin of THE and its dependence on material properties and spin texture configurations.

Bridge Experimental and Theoretical Insights:

Combine experimental and simulation results to deepen the understanding of THE mechanisms and their potential application in spintronic devices..

Project Proposal (Arial, Bold, 18 pt)

(Paragraph spacing 1.15)

1. Overview of project (Arial, Bold, 12pt)

- Title (Arial, 12pt)
- Period
- Budget

2. Information of P.I.

- Name:
- Affiliation: Position, Dept., Name of Institute
- Educational qualification:
- Contact
 - Tel.:
 - Mobile:
 - Email:

3. Necessity and objectives (Max. 1 page)

4. Details (Max. 3 pages)

5. Strategies, methods and system

6. Expected achievements and application plan

7. Deliverables

8. Timeline

9. List of participants and budget plan

Project Result Report (Arial, Bold, 18 pt)

(Paragraph spacing 1.15)

1. Overview of project (Arial, Bold, 12pt)

- Title (Arial, 12pt)
- Period
- Budget

2. Information of P.I.

- Name:
- Affiliation: Position, Dept., Name of Institute
- Educational qualification:
- Contact
 - Tel.:
 - Mobile:
 - Email:

3. Objectives (Max. 1 page)

4. Details (No limit of pages)

4.1 Introduction

4.2 Methods

4.3 Results

4.4 Conclusion

5. Deliverables

6. Expenses