



Office of International Relations Indian Institute of Technology Kharagpur-721302



Ref. No. 1900/2023/OIR

Date: 20.06.2023

Sub: Request to approve the visit of a team of 7 faculty members against the Invitation for IIT Kharagpur: Energy Workshop at University of Alberta in Summer 2023

The University of Alberta (UoA) is one of the valued collaborators of IIT Kharagpur with an agreement for Joint Doctoral Degree Program, Faculty exchange programme, Student mobility, Joint research projects, Coordinated graduate degree programme, Joint academic activities and events.

UoA proposes to build a Joint Research & Innovation Network (JRIN) amongst the 8 Institutions namely, UoA, IIT-KGP, IIT-B, IIT-K, IIT-R, IIT-D, IIT-M & IISc-B. The areas on which JRIN would focus are energy systems, energy transition and climate change mitigation through scholarly activities. The detailed concept note is enclosed herewith, which mentions that none of the partner Institutes would provide financial contributions to the network activities. However, it aims to seek third party funding to support joint research and innovation projects for JRIN.

To initiate with the activities, the University of Alberta has invited a team of 7 faculty members from IIT Kharagpur for a bilateral 2-day workshop on Energy and Environment at Alberta in late August 2023. Prof Debaprasad Kastha and Prof Brajesh Dubey have agreed to be the coordinators of the program in the domain of Energy and Environment respectively.

Regarding financial implications, UoA has offered the following for the team from IIT Kharagpur:

1. Ground transport between the Edmonton International Airport (YEG) and UoA North Campus
2. Guest room accommodations for up to 7 researchers at UoA conference centre
3. Meals and refreshments for participants during the workshop

The travel costs for IIT Kharagpur team, such as airfare, travel insurance, visa fees, etc. are needed to be borne by IIT Kharagpur.

Regarding the selection criteria for visiting faculty members, UoA suggests the following:

- Tenure-track or equivalent faculty members.
- Faculty members who are research professors with authority to train graduate students and apply for funding from Indian funding agencies.
- Faculty members who are research professors at a stage in their career to apply for funding from Indian funding agencies to support collaborations with U of A research professors who are eligible to apply for and hold NSERC Alliance International grants and MITACS grants.
- Faculty members who currently train graduate students and post-doctoral researchers, or who have the capacity to establish trainee programs in short order.
- Faculty members who have a track record of working in the area of energy.

Based on the research interests of the faculty members, the following 5 researchers from IIT Kharagpur have been selected by the coordinators, namely Prof Debaprasad Kastha and Prof Brajesh Dubey who will, along with the coordinators, attend the 2-days workshop at Alberta.

Sr No	Name of the faculty member	Department/Center/School	Area of interest	Specific research interest as of date
1	Amreesh Chandra	Physics	Energy	Na-ion batteries, supercapacitors, energy materials
2	Somnath Sengupta	ATDC	Energy	Energy Management of Hybrid Electric Vehicles; energy consumption minimization of industrial processes; Electric Vehicles
3	Chandra Sekhar Tiwary	Metallurgical and materials engineering	Energy & Environment	Development of materials (metal, alloys, ceramic, polymer and composites) for clean/green energy generation and environmental cleaning.
4	Amit Ghosh	School of Energy Science and Engineering	Energy & Environment	Bioenergy, waste to wealth
5	Dr. Vishnu Chandrasekharan Nair	Deysarkar Centre of Excellence in Petroleum Engineering	Energy & Environment	CO2 Geo-storage, Hydrogen Geo-storage, Enhanced oil recovery, Gas hydrates

Submitted for the consideration and approval please.

Amreesh Chandra
Associate Dean, IR & Ranking

Approval is requested for visit of 7 researchers from IIT Kgp.

8/22/23

Dean, Outreach & AA

1. The source of fund for supporting travel is not given. It is requested that the faculty members use their own fund/FDP/CPDA, the same to be indicated.

2. Is it not possible to have an on-line workshop? The event is expected to happen in December/January, in the middle of the semester, and sparing 7 faculty members may affect the academic schedule. Alternatively, the timing of the visiting may be changed to December, 2023 or May/June, 2024.

Asst. Dean (IR&R)

22/6/23

Concept Note

University of Alberta - Indian Institute of Technology (IIT) and Indian Institute of Science (IISc) Joint Research and Innovation Network

Indian partners: Indian Institute of Technology (IIT) - Bombay, Delhi, Kanpur, Kharagpur, Madras, and Roorkee and Indian Institute of Science (IISc) - Bengaluru.

Preamble

Recognizing the partnership that exists between the University of Alberta (U of A) and Indian Institute of Technology (IIT) - Bombay, Delhi, Kanpur, Kharagpur, Madras, and Roorkee and the Indian Institute of Science (IISc) - Bengaluru, the institutions wish to further the partnerships, with an initial strategic focus on energy systems, energy transition and climate change mitigation. Other areas may be added in the future based on mutual interest. The purpose of this document is to outline the parameters for a proposed joint research and innovation network that would catalyze research partnerships between the U of A, IITs and IISc.

An agreement to create a joint research and innovation network (JRIN) would be formalized through a memorandum of understanding (MoU). Except for provisions dealing with privacy and confidentiality, the MoU would not create any legally binding obligation on the parties. Specific details regarding collaborative activities would be agreed to by the parties in further legally binding agreements.

Joint Research and Innovation Network

The U of A-IIT-IISc joint research and innovation network (UA-IIT-IISc JRIN) will provide a framework through which the parties can foster and develop a comprehensive relationship between them through scholarly activities such as:

- Joint research funding applications
- Joint research projects and publications
- Joint commercialization of technologies in India and/or Canada (in line with Canada's strategic plan to strengthen Science, Technology and Innovation partnerships with India)
- Joint Doctoral training programs
- Joint research seminars and conferences
- Develop solutions for key global issues with a special focus on India and Canada
- Mobility of researchers, graduate students, post-doctoral fellows, and other trainees
- Supporting and advancing the careers of early career researchers

- Other academic programming as considered appropriate by both parties (such as training courses)
- Provide a platform for collaboration with academia, industry and government in the two countries

Sustainability

The parties will support the research and innovation activities of the UA-IIT-IISc JRIN by seeking third party funding to support joint research and innovation projects. This may be through national funding programs in India and Canada, international funding programs, industry, philanthropy (where appropriate and available), or other sources. As the Government of Canada pivots towards an [Indo-Pacific Strategy](#) that articulates accelerating Canada-India cooperation in the fight against climate change and prioritizing renewable energy and clean technology, it is likely that government funding schemes will be established that could support the initial focus of this Joint Research and Innovation Network. The nature and scope of third-party funding will be set out in Specific Project Agreements. For clarity, no party is obligated through the UA-IIT-IISc JRIN memorandum of understanding to provide financial contributions to the network activities. Some examples of funding include:

Potential Grants or Funding in Canada:

- Canada's Indo-Pacific Strategy
- Proposed Canada First Research Excellence Fund in "Energy Systems Transitions, Resilience And Climate Change (ESTRCC)"
- Natural Science and Engineering Research Council of Canada (NSERC) Alliance International grant
- MITACS Accelerate International
- MITACS Globalink
- New Frontiers in Research Fund International Joint Initiatives (e.g., for Research in Climate Change Adaptation and Mitigation)
- CanExport Innovation
- Special *ad hoc* Initiatives from the Federal and Provincial Governments
- Federal Funding Agencies such as Natural Resources Canada (NRCan), Environment and Climate Change Canada (ECCC), Innovation Science and Economic Development (ISED)
- Provincial Agencies such as Alberta Innovates and Emissions Reduction Alberta, Ministry of Technology and Innovation
- Province of Alberta Strategic Networking and Development grants

Potential Grants or Funding in India:

- Science and Engineering Research Board (SERB) [*currently funding U of A overseas doctoral fellowships*]
- Department of Science and Technology (DST) [*funding partner for IC-IMPACTS*]
- Department of Biotechnology (DBT) [*funding partner for IC-IMPACTS*]

Joint Seed Program

Notwithstanding the preceding approach to the sustainability of network activities, the parties may choose to create a joint research seed program to catalyze new research collaborations between the U of A and IITs/IISc. Discussions will be required between the U of A and IITs/IISc to explore the feasibility of such a program. The particulars of a seed grant program would be established through a separate seed grant program agreement. The intent of a seed grant program would be to create a relationship that allows the researchers to apply for future joint funding from external sources for larger projects. The long-term sustainability of the relationships that could be created through a joint seed program might include the following:

- Flexibility to start projects over the multi-year timeframe of the network as the research relationships are created and developed.
- Pursuing NSERC Alliance International, MITACS and other funding opportunities in Canada and India.
- Integrating joint research and innovation workshops at U of A and at IIT/IISc to build the relationships and exchange ideas. Funding will be sourced from NSERC Alliance International Catalyst grant and Province of Alberta Strategic Networking and Development grants.
- Expansion of critical mass for research, innovation, and exchanges already created through the [Engage India: Association of Professors](#) at U of A.

Term

The agreement would come into effect on the date that it is signed by both parties and continue in effect for a period of five years, unless terminated earlier. The parties can amend or extend the agreement by written amendment.

Oversight

The U of A, IITs and IISc will establish a Network Steering Committee (NSC) to provide oversight to the collaboration. The NSC of senior research scientists and administrative officers will include representatives from the U of A and representatives from each of the IITs and IISc. From the U of A, these representatives could include the VPRI or delegate, a representative from UAI, a subject matter expert from the research community with knowledge and understanding of the Indian system and who has an existing reputation with the Indian institutional partners, and the OVPRI International Research Officer. The NSC will provide oversight to the collaboration, determine yearly goals, propose or facilitate new initiatives and review network progress.

From: "Cen Huang" <cen1@ualberta.ca>
To: "Associate Dean International Relation" <adeanir@adm.iitkgp.ac.in>
Cc: "Andre McDonald" <andre.mcdonald@ualberta.ca>, "Amit Kumar" <amit.kumar@ualberta.ca>, "John Bell" <john.bell@ualberta.ca>, "Peter Carter" <peter.carter@ualberta.ca>, "- india1" <india1@ualberta.ca>
Sent: Monday, May 15, 2023 11:09:54 PM
Subject: Invitation for IIT Kharagpur: Energy Workshop at University of Alberta in Summer 2023

Dear Prof. Chakraborty,

Warm greetings from the University of Alberta. Thank you very much for your patience regarding our proposed next steps for the development of a Joint Research and Innovation Network. After holding a number of internal discussions, we have come up with a plan that we would appreciate your thoughts on; please see below.

U of A would be pleased to host an in-person bilateral workshop on "Energy and Energy Transition" with IIT Kharagpur in the last half of August 2023. We envision this as being a 2-day workshop, with the first day for presentations and the second day for lab tours, one-to-one discussion, and a plenary to review outcomes and discuss next steps.

As this will be an initial workshop, we are thinking of broadly keeping the research topics to:

- Renewable Energy (Solar, wind, biomass)
- Hydrogen
- Energy Storage

Planning for 20-minute long presentations on day one, we anticipate being able to accommodate about 7 presenters per institution (if evenly distributed), in addition to time allocated for institutional overviews during its opening and perhaps a panel discussion.

As an incentive for participation in the workshop and developing research ties in these strategic areas, we have secured funding to offer two fully (centrally) funded 12-month Joint Doctoral Degree Program (JDP) placements at U of A to further help foster connections between our researchers.

If more than two expressions of interest are received for JDP placements from workshop participants, we can connect with you regarding review and selection. One requirement we are thinking of for successful applicants will be for them to submit an NSERC Alliance International grant application.

The NSERC Alliance International Catalyst grants provide \$25,000 CAD (~15 lakh INR) in funding for one year to support exploratory research activities with international partners and initiating exchanges for Canadian personnel where appropriate. Such funding could be used for a follow up visit to your institution by a group of U of A researchers in 2024 with the aim of working towards the submission of an NSERC Alliance International Collaboration grant, which awards up to \$300,000 CAD (~1.8 crore INR) over 3 years.

Collaboration grants are awarded on a cost sharing basis and require international academic collaborators to have already secured funding (at least equal to the amount being requested from NSERC) from their own national funding agency for the collaborative project and identified the Canadian academic researcher(s) in their proposal; the proposal must also have been peer-reviewed. We would be happy to answer any questions you may have about these grants.

Could you please let us know what you think about all of this? In particular, if you believe holding this first workshop in late August would be viable for around 7 IIT Kharagpur researchers to visit U of A, and if you agree with our proposed research areas or have any alternative suggestions? We would be

happy to connect via Zoom sometime soon to discuss this further.

Many thanks for your time and consideration in advance.

Best regards,
Cen

CEN HUANG, PhD

Vice-Provost & Associate Vice-President (International)
she/her

Executive Coordinator: Barbara LeFort, uavpea@ualberta.ca
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The University of Alberta respectfully acknowledges that we are situated on Treaty 6 territory, traditional lands of First Nations and Métis people.



From: "Cen Huang" <cen1@ualberta.ca>
To: "Associate Dean International Relation" <aodeanir@adm.iitkgp.ac.in>
Cc: "Andre McDonald" <andre.mcdonald@ualberta.ca>, "Amit Kumar" <amit.kumar@ualberta.ca>, "John Bell" <john.bell@ualberta.ca>, "Peter Carter" <peter.carter@ualberta.ca>, "- india1" <india1@ualberta.ca>, "Jayanta Mukhopadhyay" <jay@cse.iitkgp.ac.in>, "Dr. B K Dubey" <bkdubey@civil.iitkgp.ac.in>, kastha@ee.iitkgp.ac.in, "goutam" <goutam@mech.iitkgp.ac.in>, "Shruti Singh" <shruti@adm.iitkgp.ac.in>, "Ms. Koushiki Mukherjee" <koushiki@adm.iitkgp.ac.in>
Sent: Tuesday, May 30, 2023 8:15:18 PM
Subject: Re: Invitation for IIT Kharagpur: Energy Workshop at University of Alberta in Summer 2023

Dear Prof. Chakraborty,

Thank you for your positive response. We are pleased to hear of the high level of interest among researchers at IIT Kharagpur to participate in the workshop.

U of A would be pleased to take the lead on the workshop's overall coordination. At U of A, this will be a collaboration between the Office of the Vice-President (Research and Innovation) and University of Alberta International. Dr. André McDonald, Associate Vice President (Strategic Research Initiatives and Performance), copied on this mail, will prepare a draft workshop agenda and share with you for review.

Regarding financial implications, U of A is able to offer ground transport between the Edmonton International Airport (YEG) and our North Campus, as well as guest room accommodations for up to 7 researchers at our conference centre; meals and refreshments will also be provided for participants during the workshop. We would request that IIT Kharagpur cover the travel costs for your researchers, such as airfare, travel insurance, visa fees, etc.

In addition to the workshop, I am currently looking into the possibility of arranging a private day trip to visit Jasper National Park in the Rocky Mountains for the IIT Kharagpur delegation, provided that this is something they would be interested in doing. Please note that it is around a 4-hour drive from Edmonton and would add an extra day to their travel.

As for the selection criteria for visiting faculty members, Dr. André McDonald and Dr. Amit Kumar have suggested the following:

- Tenure-track or equivalent faculty members.
- Faculty members who are research professors with authority to train graduate students and apply for funding from Indian funding agencies.
- Faculty members who are research professors at a stage in their career to apply for funding from Indian funding agencies to support collaborations with U of A research professors who are eligible to apply for and hold NSERC Alliance International grants and MITACS grants.
- Faculty members who currently train graduate students and post-doctoral researchers, or who have the capacity to establish trainee programs in short order.
- Faculty members who have a track record of working in the area of energy.

Dr. Kumar let me know that he has recently spoken with Prof. Brajesh Dubey about the NSERC Alliance International grants, which I hope helped clear things up. Their [website](#) has detailed information on the two grant types: Catalyst and Collaboration. In summary, the NSERC Alliance International Catalyst grants provide \$25,000 CAD (~15 lakh INR) in funding for one year to support exploratory research activities with international partners and initiating exchanges for Canadian personnel where appropriate. Such funding could be used for a follow-up visit to your institution by a group of U of A researchers with the aim of working towards the submission of an NSERC Alliance International Collaboration grant, which awards up to \$300,000 CAD (~1.8 crore INR) over 3 years. If you have any specific questions, Dr. McDonald would be better positioned to answer than myself.

Please feel free to follow up directly with him about them.

I hope that answers all of your questions. Please let me know your thoughts and if you need any further information.

Best regards,
Cen

CEN HUANG, PhD
Vice-Provost & Associate Vice-President (International)
she/her

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On Wed, May 24, 2023 at 1:11 AM Associate Dean International Relation <adeanir@adm.iitkgp.ac.in> wrote:

Dear Dr Huang,
Glad to hear from you.

Thanks for sharing the plans for the workshop which looks very promising. We have already sensitized our faculty members on the JRIN proposal and you will be happy to know many of them have shown their interest to participate.

We shall discuss the idea of sending 7 IIT Kharagpur researchers for the workshop in August 2023, internally and will soon get back to you. May I request to have some more detailed information on this like the roles and responsibilities of host and home Institutions, selection criteria for visiting faculty members or any financial implications involved et al.

I would also request you to kindly share some detailed information about the NSERC grant.

Looking forward to hearing from you.

Warm regards
Goutam

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