



RESEARCH HORIZONS

The Official Newsletter of the University Grants Office

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**Ahmedabad
University**

IN CONVERSATION WITH AMOL AGRAWAL



Amol Agrawal is Assistant Professor at Amrut Mody School of Management. His blog “Mostly Economics” has been selected to feature in an international compilation of the Top 100 Economics blogs for 2020 in the Regional Blog category. We spoke to him about his blog and public engagement of research. Excerpts from the conversation.

Please could you briefly tell us about your blog “Mostly Economics”?

“Mostly Economics” was created in 2007. I was then a newly recruited staff member at IDBI Capital Markets. While I initially started writing about several subjects, my focus was always on Economics. Within a short span of time, I started receiving good feedback and was also invited to contribute to a newspaper column. This made me realize that with my writing, I was able to reach out to readers, about matters from the world of Economics.

The global financial crisis of 2008 shook the world. This situation prompted a lot of conversation in the Western world, with experts analyzing policies and suggesting ways to avoid a second Great Depression in the world. Strangely, at that point, there was very little discussion or debate relating to economic and banking history in India. It was not as though India had not had significant financial crises, but rather the discussions in the public domain were largely absent. My blog was very new at this point.

I tilted my own research interests towards banking history, economic history and business history. I also took to writing about these themes through my blog and adding the Indian aspect to available literature. I have now been blogging for the last 13 years. This has required me to do a lot of reading and background research in order to put the posts together. The articles have been based on what I read and find interesting in the field. Over time, my blog has become an excellent memory aid for me as it helps me keep track of my own views and writing.

What are your thoughts on being picked to be featured on the list?

It is of course a privilege to have been picked for inclusion in the list. I am thankful to those who are including me here. It is encouraging to think that my blog posts might have made a difference somewhere in the world. The Top 100 Economics blogs for 2020 are curated and ranked by intelligenteconomist.com. The current team has done so for at least five years. Previously, there were other portals which focussed on searching and identifying Economics blogs across the world that were being read the most. My blog has previously featured on that list as well. However, we still do not have an Indian academic aggregator to evaluate Economics blogs and their contributions. It is perhaps worth paying attention to these rankings as it indicates that the articles are being read by a large audience.

Please could you share any particular highlight from your blog?

One of the most interesting stories I wrote about emerged from my dissertation carried out at the Indian Institute of Management, Bangalore. In 2017, the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel was awarded to Richard Thaler for his work on “nudge theory” or behavioural economics. I was of course aware of Thaler’s work. Equally, from my dissertation work on the history of banking in the Canara region in India, I knew that some Indian bankers had long been nudging customers into saving. This had happened nearly 70 years before Thaler’s work and was an obscure fact from Indian history. Thaler’s recognition gave me the impetus to write about the South Canara bankers, in an article for the Mint. My article in turn made readers realize that we do not look much at our own history in India. I also wrote to Prof Thaler about the article and to my surprise, he replied saying it was a well-written article! For me, this is one of the most significant pieces I have written about and shared via my blog.

Please could you share your thoughts on blogging as a means of engaging with the public about research?

The purpose of research is to advance and share knowledge. Researchers tend to publish their work in peer-reviewed journals. This process is very time consuming and the content may not be readily accessible to general readers. The economy and financial markets impact everyone and there is a need for the public to access information and contribute to views on such matters, particularly given the times we are living in.

Academic researchers can play a key role with disseminating content via blogs and other means. Furthermore, they tend to have the freedom to express themselves, without having to align with any particular group. Such people can build a dialogue between researchers and the broader public. Academic institutions can be at the forefront of encouraging their researchers to take on such roles and to contribute towards building knowledge in a field such as Economics. This is particularly important for India, as barring the Economic and Political Weekly, we do not currently have academic journals focusing on the Indian Economy.

About the blog: Mostly Economics can be accessed at <https://mostlyeconomics.wordpress.com> and individual articles are additionally accessible via Amol's Twitter handle @mostlyeconomics.

The article on Thaler and Rai can be accessed at <https://www.livemint.com/Sundayapp/QQysmmrYn4wvbcSLu87hmM/Before-Thaler-there-was-Pai.html>

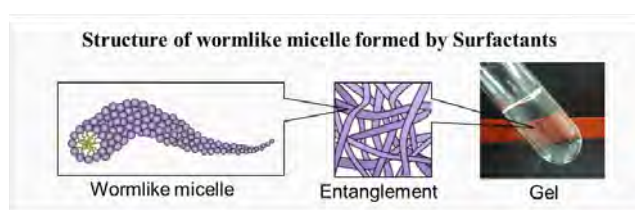
SOLUTION PROPERTIES OF MIXED SURFACTANT SYSTEMS

PROJECT REPORT BY DHARMESH VARADE

Summary

Surfactants or surface active agents are compounds that lower the surface tension between two liquids, between a gas and a liquid, or between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents and dispersants. Surfactant-based formulations are used extensively in personal care and health care. It is very important to understand the impact of using such formulations on human beings, why these materials work the way they do and how these processes could be applied in our lives. We have developed a collaborative research project with the ITC Life Sciences and Technology Centre, for establishing profound understanding with tailored approach for utilizing green surfactants in mixtures for various cosmetic product formulations.

As a part of this research project, ITC proposes the realistic problem to be solved in crafting the desired surfactant-based formulations on the basis of consumer demand and supplies us the required materials for testing and experimentation. At Ahmedabad University, the project involves a multitude of activities ranging from selection of surfactant mixtures, understanding and optimization of surfactant self-assembly, rheology, foaming and evaluating the physicochemical properties of the mixed surfactant systems. Furthermore, the project has given us direct exposure on how the unique properties of various surfactants can be utilized or tuned to obtain the desired product formulations that show improved properties, desired stability and innovative applications.



Outcomes

The collaboration not only encourages us to publish basic research findings but to additionally create innovations that anticipate and meet consumer needs. We have successfully worked on various new surfactant combinations and obtained interesting results which open up new directions in cosmetic formulations based on sulfate-free surfactants. As an outcome of this we have filed two Indian Patents in March 2019. Additionally, we are working on some manuscripts for publication that will be communicated soon.

The collaboration between ITC and Ahmedabad University has benefited students at both doctoral and undergraduate levels working on this project. Our students have been able to make meaningful contributions in these research areas, thereby enhancing the teaching-learning experience of the students while contributing to the overall growth and development of the University. The students have enjoyed working with genuine problems, planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in the existing products of ITC. This project has also allowed our students to write systematic research reports, learn data analysis and communication skills and also develop critical thinking ability.



From left to right: Niki Pandya, Dharmesh Varade, Gajendra Rajput and Dhana Lakshmi Manyala

The collaboration on “Solution Properties of Mixed Surfactant Systems” is supported by a grant from ITC awarded to Dharmesh Varade, Ahmedabad University.

Dharmesh Varade is Associate Professor at the School of Engineering and Applied Science with research interests in surfactant science and the synthesis and characterization of nanomaterials.

OPPORTUNITIES FOR CLIMATE MITIGATION AND SUSTAINABLE DEVELOPMENT (OPTIMISM)

PROJECT REPORT BY DARSHINI MAHADEVIA AND MINAL PATHAK

Summary

The OPTIMISM project aims to address the challenge of ensuring that rapid and extensive action to mitigate climate change can be leveraged to deliver both Agenda 2030 of Sustainable Development Goals (SDG) and the Paris Agreement goal of “limiting the global average temperature to well below 2 °C above pre-industrial levels”. The SDGs are spelt out in 17 goals and 169 targets to be achieved by 2030. These are the blueprint to achieve a better and more sustainable future for all, and address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice. The Intergovernmental Panel on Climate Change’s (IPCC’s) Special Report on Global Warming of 1.5 °C (SR15) has warned that if the global average temperature increase due to climate change impacts are not restricted to 1.5 °C, there will be severe negative consequences on environment, ecology and human well-being. The project uses the SDG framework to analyse (i) how interactions between human development and the environment change with rapid and extensive climate change mitigation, and (ii) how policy and practice interventions informed by a better understanding of enabling interactions can come together to create transformational change. It endeavours to establish these as two way interactions, that the climate change mitigation has synergistic or conflicting relationship requiring trade-offs when posited against the SDGs and requirement of strong climate change mitigation efforts to make progress on the SDGs, particularly in the developing countries.

The project focuses on case studies from four countries and includes researchers from Ahmedabad University, Imperial College London, Lund University and Waseda University, with each country focusing on a case study for a specific sector. These include (i) linkages between low carbon urban transport and SDGs with a focus on urban equity in two case study cities Surat and Udaipur (Ahmedabad University), (ii) mitigating land use impacts with dietary change (Imperial College London), (iii) tackling hard to decarbonize industrial sectors (Lund University) and (iv) 100% renewable energy networks (Waseda University). Together, these different sectors are expected to contribute to an enhanced understanding of climate change mitigation and SDG interactions at the global level through findings in four countries.

At Ahmedabad University, the project focuses on urban transport. Even at a low level of urbanization, Indian cities are among the 20 most polluted cities globally. Indian cities have low coverage of public transport. Available public transport is often inconvenient or unaffordable to a segment of the population, with two major implications: (i) increasing use of private motorized transport adding to local pollution and Green House Gas Emissions and (ii) denied mobility opportunities to access employment, education and other opportunities, in particular for women of the low-income strata. The project is grounded in two Indian cities, an industrial metropolis Surat and a tourist city Udaipur and will include methodology development and city level stakeholder consultations for each city on low-carbon transport and SDGs, one at the onset of the project and one at the end. Results of the study in India are expected to contribute to city-level policy briefs for the use by various stakeholders in each of the two cities and policy making on the climate mitigation and SDGs together in urban transport sector. A key methodological contribution from the case studies will be a new assessment framework to understand linkages between SDGs and deep decarbonization scenarios at the city level. The study is the first of its kind in the Indian context. We expect the project outputs will inform national and city governments on transportation policies and actions.



OPPORTUNITIES FOR CLIMATE MITIGATION AND SUSTAINABLE DEVELOPMENT (OPTIMISM)

PROJECT REPORT BY DARSHINI MAHADEVIA AND MINAL PATHAK



From left to right: Darshini Mahadevia, Minal Pathak, M Chandrima, Saumya Lathia, R Kanika Gounder and Bandish Pate

The Indian component of the collaboration on “OPTIMISM” is supported by a grant awarded to Darshini Mahadevia and Minal Pathak, Ahmedabad University by the Department of Biotechnology, Government of India. Additional global components of the project are supported by their respective national government grants to Raphael Slade and Joana Correia de Oliveira de Portugal Pereira at Imperial College London, UK; Lorenzo di Lucia, Lars Nilsson and Jamil Khan, Lund University, Sweden and Miguel Esteban, Waseda University, Japan.

Darshini Mahadevia is a Professor in the School of Arts and Sciences and has research interests in urban studies, human and gender development, poverty and inequality, and climate change. Minal Pathak is a Senior Scientist at the Global Centre for Environment and Energy, Ahmedabad University and with the Technical Support Unit of Working Group III (Mitigation) of the Intergovernmental Panel on Climate Change (IPCC). Her research focuses on climate change mitigation.

COSMOLOGICAL DARK MATTER, PRIMORDIAL BLACK HOLES, BOSE-EINSTEIN CONDENSATES, AND CHARGE ASYMMETRY OF THE UNIVERSE.

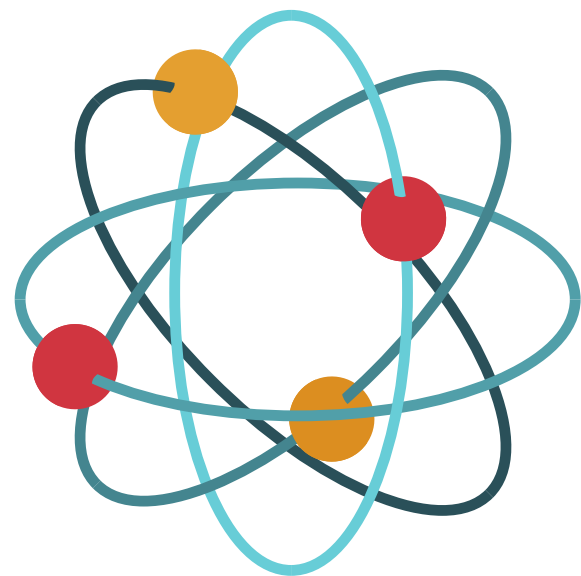
PROJECT REPORT BY RAGHAVAN RANGARAJAN

90 per cent of a galaxy is composed of matter that neither emits light nor reflects light, or electromagnetic waves of any frequency. This unseen matter is called dark matter. While the existence of dark matter has been known since 1933, and its gravitational effects have been measured, the nature of the particle or objects that constitute the dark matter is still unknown. It is presumably very weakly interacting which is why it has not been detected so far in our experiments. All the objects and living organisms around us are made of elementary particles whose properties have been well understood. On the other hand, most of the dark matter is probably made of completely different particles, or somewhat unusual objects such as primordial black holes.

Possible candidates for dark matter, including particles and primordial black holes, are being probed by a group of physicists at Ahmedabad University, IISER Kolkata and collaborating institutions in Russia. In certain circumstances, primordial black holes can also give rise to an imbalance of charge in the Universe.

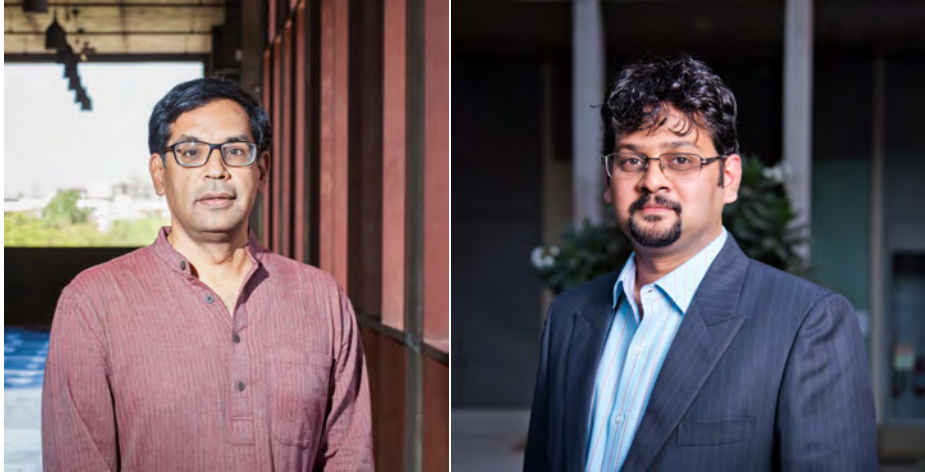
There are several postulated particles – one such particle is the axion (named after a brand of laundry detergent!). In recent years some authors have postulated that axion dark matter could interact and thermalize and form a Bose-Einstein condensate – an exotic low temperature state in which many particles are in the lowest energy state. If galactic dark matter is indeed in such a state there are many interesting observational consequences such as high density regions at certain distances from the centre of the galaxy. Multiple authors have investigated this scenario using different formalisms and come to different conclusions on the feasibility of such a scenario. In the last 9 months the Indian team has led the investigation into this part of the project. We have been able to establish why some authors agree and are still investigating why some of them disagree. Future efforts will be devoted to understanding certain quantum aspects of dark matter.

Black holes are formed when highly overdense regions collapse and create a modification of spacetime such that if any object or even light gets to within a certain distance of the collapsed overdense region it will ultimately not be able to escape from the gravity of the overdense region and will eventually fall on to it. Astrophysical black holes are presumed to have formed by the collapse of stars of a few times the mass of the Sun. Stars formed 300 million years after the Big Bang. However, there is another set of black holes that could have formed from the collapse of density perturbations created in the early Universe. Most of these black holes would have disappeared through a process known as Hawking radiation in which black holes emit radiation and lose mass. But some could have survived till today and may constitute the dark matter. Future work will focus on investigations of primordial black holes, their mass ranges and astrophysical consequences.



COSMOLOGICAL DARK MATTER, PRIMORDIAL BLACK HOLES, BOSE-EINSTEIN CONDENSATES, AND CHARGE ASYMMETRY OF THE UNIVERSE.

PROJECT REPORT BY RAGHAVAN RANGARAJAN



From left to right: Raghavan Rangarajan and Gaurav Goswami

The Indian component of the collaboration is supported by a grant awarded by the Department of Science and Technology, Government of India, to Raghavan Rangarajan, Gaurav Goswami, Ahmedabad University and Koushik Dutta, Indian Institute of Science Education and Research, Kolkata. On the Russian side, the project is supported by the Russian Science Foundation, via a grant to a team led by Alexander Dolgov of the Laboratory of Cosmology and Elementary Particle Physics at Novosibirsk State University in Russia. Other Russian team members are from the Institute for Nuclear Research of the Russian Academy of Sciences, Moscow State University, Dubna State University, Budker Institute of Nuclear Physics and the Institute for Theoretical and Experimental Physics.

Raghavan Rangarajan is Professor at the School of Arts and Sciences with research interests in Cosmology and Particle Physics. Gaurav Goswami is Assistant Professor at the School of Engineering and Applied Science with research interests at the interface of Fundamental Physics and Cosmology.



INSTITUTIONAL BIOSAFETY COMMITTEE UPDATE

Ahmedabad University's first Institutional Biosafety Committee (IBSC) meeting was held on July 14, 2020 at 4:00 pm via Zoom. All members participated in the meeting. The committee discussed 8 proposals during the meeting.

The next meeting is planned tentatively for the second week of August 2020.

AWARDS AND AWARDED GRANTS

FOR THE PERIOD FEBRUARY- JUNE 2020



Brinky Desai

Mentor: Ratna Ghoshal

Awarded a PhD Fellowship under the SHODH scheme



Dipali Pattanayak

Mentor: Sanjay Chaudhary

Awarded a PhD Fellowship under the SHODH scheme

The SHODH scheme (Scheme of Developing High-quality research) is funded by the Department of Education, Government of Gujarat and supports scholars pursuing their doctoral research in research in the fields of Sciences, Engineering, Humanities, Social Sciences, Commerce, Management, Law and Education and others.

EXTERNAL GRANTS

Sanjay Singh

Gram-scale Synthesis of Calcium Carbonate Nanoparticles Industrial Applications

Winner Trade, Gurunagar, Varachha Road, Surat

63,250 INR, 3 months

Souvik Sen Gupta (Ahmedabad University) and Ritobrata Goswami (IIT Kharagpur)

“Identification and Characterization of a novel protein from *Leishmania donovani* with potential implication in cell death pathways”

Science and Engineering Research Board

44.29 lakh INR, 3 years

INTERNAL GRANTS

Seed grant (Ahmedabad University)

Dharmesh Varade

Self-Assembly of Surfactants for Combating Antimicrobial Properties

2 lakh INR, 1 year

Start-up grants (Ahmedabad University)

Shashi Prabh

Deterministic Networking

17.51 lakh INR, 3 years

Aditya Prakash Kant and Dharmesh Varade

Green Approach for Conservation of Cultural Heritage Using Micro-Emulsion, Micellar Solution and Clay in Polymer Gel Matrix

13.8 lakh INR, 2 years

Aditya Vaishya

Atmospheric trace species composition over Ahmedabad based on a network of low-cost sensors, satellite remote sensing, and regional-scale modeling

25 lakh INR, 3 years

RESEARCH SEMINARS

FOR THE PERIOD MARCH- JUNE 2020

Amrut Mody School of Management

1. Rahul Singh, IIM Bangalore. *Technical Regulations, Intermediate Inputs and Performance of Domestic Firms: Evidence from India*. March 17, 2020.
2. Supratim Das Gupta, Ahmedabad University. *Using Real Options to Value Capacity Additions and Investment Expenditures in Renewable Energies in India*. March 18, 2020.
3. Ravi Miglani, Ahmedabad University. *What is the role of management education in today's context?* April 25, 2020.
4. Vivek Bhatt, Ahmedabad University. *Technology, Operations and Decision Sciences*. May 5, 2020.
5. Minal Pathak & Amol Agrawal, Ahmedabad University. *The Science and Economics of Climate Change*. May 30, 2020.
6. Ashoke Chatterjee, Ahmedabad University. *Impact of Pandemics on Heritage Sector*. May 1, 2020.
7. Bijal Mehta, Ahmedabad University & Pradeep Sreedharan, Unlimit IoT Pvt. Ltd. *Digital Disruption and Management Education*. May 23, 2020.
8. Surinder Jodhka, Jawaharlal Nehru University. *The Rural Today*. May 29, 2020.
9. Vandana Chak, Ahmedabad University & Jonás Bergstein, Bergstein Abogados, Montevideo, Uruguay. *Corporate Governance: In Whose Interest Is It Anyway? And Why Do Management Students Need To Know About It*. June 6, 2020.
10. P. R. Shukla, Ahmedabad University, C.N. Pandey, IIT Gandhinagar & S.J. Haider, Department of Climate Change. *Biodiversity and Climate Change*. June 5, 2020.
11. Pankaj Chandra, Ahmedabad University & Devanath Tirupati, Ahmedabad University. *Do we Need New Supply Chains for the New World*. June 13, 2020.
12. Nachiket Mor, The Banyan Academy of Leadership in Mental Health & Darshini Mahadevia, Ahmedabad University. *Do We Need A New Approach to Health Systems Design In India?* June 20, 2020.
13. Lakshmi Subramanian, BITS Pilani, Tana Trivedi, Ahmedabad University & Aparajith Ramnath, Ahmedabad University. *BUSINESS HISTORY: The Discipline and its Relevance for Management Education*. June 27, 2020.
14. M. Govinda Rao, Government of India. *COVID-19 Crisis and Response by the Indian Government*. June 26, 2020.
15. Amareswar Galla, International Institute for the Inclusive Museum, Copenhagen, Ute Meta Bauer, Centre for Contemporary Art (CCA), Singapore, Bose Krishnamachari, Kochi Biennale Foundation & Nathalie King, University of Melbourne. *THE PANDEMIC IS A PORTAL: A Conversation on Art & Agency*. June 13, 2020.
16. Brinda Miller, Kala Ghoda Festival & Neena Parikh, Neekoe Foundation. *Shift in Cultural Curation Post Pandemic*. May 30, 2020.
17. Deborah Thiagarajan, Dakshina Chitra Museum, Sara Ahmed, Lead Curator, Living Waters Museum. *Post-Covid Museums*. May 16, 2020.

School of Engineering and Applied Science

1. Sunita Kanjilal, Johannes Kepler University, Austria. *Theory and Numerical Modelling of Two Phase Flow: Melt Percolation Process Through Porosity Dependent Viscous Matrix Inside the Earth*. March 3, 2020.
2. Akhand Rai, IIT Roorkee. *Prognostics of Rolling Element Bearings*. March 5, 2020.
3. Raksh Vir Jasra, R & D Centre, Reliance Industries Limited. *Sustainable Development through Innovative Technologies*. March 11, 2020.
4. T, Rama Rao, SRM Institute of Science & Technology. *Millimeter Waves for Next Generation Wireless Communication*. May 12, 2020.
5. Shantanu Bhowmik, Amrita Vishwa Vidyapeetham University. *Recycling of Plastic Waste to Plastic Composite Products & High performance thermoplastic composite game changer for aviation, space and defense*. May 13, 2020.

RESEARCH SEMINARS

FOR THE PERIOD MARCH- JUNE 2020

School of Arts and Sciences

1. Anaís da Fonseca, SOAS South Asia Institute, London. *Contemporary Traditions: Reflections on the divide between art and craft in India*. March 4, 2020.
2. Manu V. Devadevan, IIT Mandi. *The Evolution of Kannada as a Vernacular Language*. April 8, 2020.
3. Shilpa Pandit, Chinmaya University. *Applying Social Psychology, Solving Human Concerns: From retro to future focussed research*. May 14, 2020.
4. Anush Kapadia, IIT Bombay. *Why Does Money Have Value? An outline of a political theory of Money*. March 6, 2020.
5. Mona Mehta, IIT Gandhinagar. *Beyond 'Time pass' and 'Dream Zones': Innovations in Rabari Youth Aspirations in Peri-Urban Gujarat*. May 7, 2020.
6. Alice Collett, Cardiff University. *The Quest for Nirvana among Royal and Noble Women according to Ikavaku Inscriptions*. March 12, 2020.



Our heartiest congratulations to Dharmesh Varade, School of Engineering and Applied Science for having received the Chairman's Award for Research on Ahmedabad University's Foundation Day 2020. Foundation Day was celebrated on March 4, 2020.

PUBLICATIONS

FOR THE PERIOD MARCH- JUNE 2020

Books

Bhat S. (2020). *Diasporic Inquiries into South Asian Women's Narratives: Alien Domiciles* (Edited Book). Maryland, US; Rowman and Littlefield.

Rajendran S., Mukherjee A., Nguyen T., Godugu C. & Shukla R. (2020). *Nanotoxicity: Prevention and Antibacterial Applications of Nanomaterials*. Amsterdam; Elsevier.

Chapters in Monographs and Books

Bhat S. (2020). Colonialism and Racialization in *The Madwoman in the Attic*, *Wide Sargasso Sea* and *Jane Eyre*, *Women's Human Rights in Nineteenth-Century Literature and Culture*. Elena V. Shabliy, Dmitry Kurochkin, and Gloria Y.A. Ayee. Maryland, US; Rowman and Littlefield.

Bhat S. (2020). Historical Ripple Effects in Indo-Canadian Narratives: The 1984 Sikh Carnage in M. G. Vassanji and Anita Rau Badami, *(E)razed Chapter: Remembering the Tales of Mourning Carnage'84*. Ishmeet Kaur. Hyderabad, India; Orient Blackswan.

Bhat S. (2020). 'Khamosh!...The Kaptan is going to speak': Gothic Conventions and Diaspora in Amitav Ghosh's *Sea of Poppies*, *The South Asian Gothic. Deimantas Valanciunas and Katarzyna Ancuta*. Cardiff, Wales; University of Wales Press.

Bhat S. (2020). Maritime Links, Imperialism and Diaspora in the Ibis Trilogy, *Eastern and Western Synergies and Imaginations*. Katrine K Wong, University of Macau. Leiden; Brill.

Deo A. (2020). Vernacular Music Traditions and their Publics: The Political Dimensions of Sounds and Technologies, *Music, Modernity and Publicness in India*. Tejaswini Niranjana, ed. (231-252). New Delhi; Oxford University Press.

Dhar S., Pathak M., Shukla P. & Gupta A. (2020). Electric vehicles penetration in India for enhanced energy efficiency deployment in the transport sector, *Energy Efficiency in Developing Countries: Policies and Programmes*. Suzana Tavares da Silva & Gabriela Prata Dias. (253-270). London; Routledge.

Kansara K. & Kumar A. (2020). In vitro methods to assess the cellular toxicity of nanoparticles, *Nanotoxicity Prevention and Antibacterial Applications of Nanomaterials*. S. Rajendran, A. Mukherjee, T. A. Nguyen, C. Godugu & R. K. Shukla. (21-40). Amsterdam, Netherlands; Elsevier.

Kumar A. (2020). Gandhi, Kant and Superstition, *Gandhi in Contemporary Times*. S. K. Srivastava and Ashok Vohra (eds.). (72-84). London; Routledge India.

Kumar A. (2020). Teaching Self-Respect: The Very Idea, *Teaching in Unequal Societies*. John Russon, Siby K. George and P. G. Jung (eds.). (79-107). New Delhi; Bloomsbury.

Parekh D., Suggala S. & Thomas S. (2020). Saving Little Lives through Bempu TempWatch, *Socio-Tech Innovation Harnessing Technology for Social Good*. Poonamallee, Latha, Scillitoe, Joanne, Joy, Simy (Eds.). (145-162). New York, USA; Springer International Publishing.

Saxena . & Rao T. (2020). Human Resources Development for Business Leadership in India, *Human Resources Development for Business Leadership in India*. AAHAD M. OSMAN GANI. Kyoto; Pearson Education..

PUBLICATIONS

FOR THE PERIOD MARCH- JUNE 2020

Chapters in Monographs and Books (continued)

Thomas S., Kureshi S., Suggala S. & Mendonca V. (2020). Conceptually understanding employer branding from HRM 4.0 perspective, *Book on Human & Technological Resource Management (HTRM) –New Insights into Revolution 4.0*. Payal Kumar, Anirudh Agrawal and Pawan Budhwar (Eds.). United Kingdom; Emerald.

Unni J. (2020). Boosting Women's Work Participation, *Reviving Jobs: An Agenda for Growth*. Santosh Mehrotra, (edited) . (Chapter 12). New Delhi; Penguin Random House.

Unni J. (2020). Mandi/Sabzi Mandi/E-Chaupal, *Keywords for India: A Conceptual Lexicon for the 21st Century*. Rukmini Nair and Peter Ronald de Souza. (1-00). New Delhi; Bloomsbury Academic.

Articles in refereed journals

Ayob A.H. & Saiyed A.A. (2020), Islam, institutions and entrepreneurship: evidence from Muslim populations across nations. *International Journal of Islamic and Middle Eastern Finance and Management*, <https://doi.org/10.1108/IMEFM-11-2019-0472>.

Banker N., Ashwath V. (2020). Theoretical and Experimental Modeling of Phase Change Material based Space Heating using Solar Energy. *International journal of air-conditioning and refrigeration*. <https://doi.org/10.1142/S2010132520500169>

Bhagat S. & Singh S.(2020). Co-delivery of AKT3 siRNA and PTEN plasmid by antioxidant nanoliposomes for enhanced anti-proliferation of prostate cancer cells. *ACS Applied Bio Materials*.

Bhat S. (2020). Military/warrior legacy, the Taj and the Sikh- Canadian diaspora in Breakaway. *Sikh Formations*. Routledge, Taylor and Francis: Abingdon, UK., 1-15.

Changela A., Zaveri M. & Verma D.(2020). FPGA implementation of high-performance, resource-efficient Radix-16 CORDIC rotator based FFT algorithm. *Integration*, 73, 89-100.

Chu C., Swamy K. & Li H. (2020). Tissue-Specific Regulation of Plastid Protein Import via Transit-Peptide Motifs. *The Plant Cell*, 32(4), 1204-1217.

Das S., Goswami G. & Krishnan C. (2020). Swampland, axions, and minimal warm inflation. *Phys. Rev. D*. DOI:<https://doi.org/10.1103/PhysRevD.101.103529>

Ganguli A.(2020). Three dimensional CFD studies of a solar chimney: Effect of geometrical parameters and diurnal variations on power generated. *Frontiers in Chemical Engineering*, 2(2), 1-15.

Gupta N., Bhagat S., Singh M., Jangid A., Bansal V., Singh S., Pooja D. & Kulhari H.(2020). Site-specific delivery of a natural chemotherapeutic agent to human lung cancer cells using biotinylated 2D rGO nanocarriers. *Materials Science and Engineering: C*, 112, 110884 - 110890.

Jain P., Bhagat S., Tunki L., Jangid A., Singh S., Pooja D. & Kulhari H. (2020). Serotonin-Stearic Acid Bioconjugate-Coated Completely Biodegradable Mn₃O₄ Nanocuboids for Hepatocellular Carcinoma Targeting. *ACS Applied Materials & Interfaces*, 12(9), 10170-10182.

PUBLICATIONS

FOR THE PERIOD MARCH- JUNE 2020

Articles in refereed journals (continued)

Katheria S., Kunzru D & Deo G. (2020). Kinetics of Steam Reforming of Methane on Rh- Ni/MgAl₂O₄ Catalyst. *Reaction Kinetics, Mechanisms and Catalysis*, 130 (1), 91-101.

Kavaiya S., Patel D., Guan ., Sun S., Chang Y. & Mun-Yee Lim J.(2020). On the Energy Detection Performance of Multiantenna Correlated Receiver for Vehicular Communication using MGF Approach. *IET Communications*, 1-12.

.Mahadevia D. (2020). Book Review: Amit Garg, Vidhee Avashia and Shrutika Parihar. Land Use Change Trends of Indian Cities: A Bird's Eye View: Vulnerabilities of Unplanned Urban Growth (New Delhi: SAGE Publications), 2018 . *Environment and Urbanization, ASIA*, 11(1), 170-172.

Mahadevia D., Pathak M., Bhatia N. & Patel S.(2020). Climate Change, Heat Waves and Thermal Comfort—Reflections on Housing Policy in India. *Environment and Urbanization Asia - SAGE*, 11(1), 29-50.

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FUNDING OPPORTUNITIES: COVID-19 CALLS

Agency: Department of Biotechnology (DBT), in collaboration with DST and funding agencies from the BRICS countries

Scheme: Response to COVID-19 pandemic coordinated call for BRICS multilateral projects 2020

Scheme remit: To support excellent research on priority areas which can best be addressed by a multinational approach

Thematic focus areas: (i) New technologies/tools for diagnosing COVID-19, (ii) Research and development of COVID-19 vaccines and drugs, (iii) Genomic sequencing of SARS-CoV-2 and studies on the epidemiology and mathematical modelling of the COVID-19 pandemic, (iv) AI, ICT and HPC oriented research for COVID-19 drugs design, vaccine development, treatment, clinical trials and public health infrastructures and systems, and (v) Epidemiological studies and clinical trials to evaluate the overlap of SARS-CoV-2 and comorbidities, especially tuberculosis

Team structure: The initiative should facilitate cooperation among the researchers and institutions in the consortia which consist of partners from at least three of the BRICS countries (Brazil, Russia, India, China and South Africa). Indian Industry can be a partner in the consortium.

Budget provisions: As per Government of India norms, and commensurate with work proposed

Duration: 2 years

Deadline: 18th August 2020

Weblink: <http://dbtindia.gov.in/sites/default/files/National%20Application%20Annexure.pdf>

Application process: One Joint Application Form (JAF) and National Application in the country specific format are mandatorily to be submitted in each partnering country

Agency: Shastri Indo-Canadian Institute (SICI)

Scheme: Shastri Covid-19 Pandemic Response Grant (SCPRG): Call for Innovative Solutions

Agency remit: To support intellectual and cultural linkages between India and Canada, through research, dialogue and exchange

Scheme remit: To support global scientific and non-scientific communities towards contributing to find innovative solutions to the current situation

Research focus areas: All domain of knowledge inclusive of STEM, Humanities & Social Sciences and Arts

Budget provisions: 20 lakh INR, including salaries, Materials and Supplies, workshops/seminars and Contingency costs

Duration: 1 year

Deadline: 31st July 2020

Weblink: <https://www.shastriinstitute.org/grants-awards-and-opportunities-for-indian-canadian-scholars>

Application process: Details on website

SICI COVID-19 Policy regarding awards: <https://www.shastriinstitute.org/sites/default/files/Covid-19-policy-regarding-SICI-awards.pdf>

SICI membership: Ahmedabad University will need to apply to be an Indian member institution

Agency: Shastri Indo-Canadian Institute (SICI)

Scheme: Shastri Research Grant (SRG): Special Competition

Scheme remit: To support India-Canada research collaborations that will enhance the ability of each country to respond to the ongoing implications of the Covid-19 pandemic.

Thematic focus areas: (i) Public health, (ii) Energy and environment, (iii) Agriculture and food security, (iv) Gender-related impacts, (v) Migrant workers and other marginalized groups (vi) Psychosocial impacts of lockdown, (vii) What do reopening and recovery look like?

Budget provisions: 5000 CAD\$

Duration: To be utilized within the period from 1 October 2020 to 30 June 2021.

Deadline: 31st July 2020

Weblink: <https://www.shastriinstitute.org/grants-awards-and-opportunities-for-indian-canadian-scholars>

Application process: Online, via SICI portal

SICI COVID-19 Policy regarding awards: <https://www.shastriinstitute.org/sites/default/files/Covid-19-policy-regarding-SICI-awards.pdf>

FUNDING OPPORTUNITIES: RESEARCH GRANTS AND FELLOWSHIPS

Agency: DBT/Wellcome Trust India Alliance

Scheme: Early Career Fellowship

Scheme remit: To support promising newly qualified postdoctoral researchers a unique opportunity to help them make an early start in establishing their own research programme.

Applicant eligibility: 1-4 years post-PhD

Research focus: Biomedical research

Budget provisions: Up to Rs 1.7 crore INR, including personal support, consumables, 1 support staff, funds for work outside host institution, travel to meetings, contingency and institutional overheads.

Duration: 5 years

Deadline: 11th August 2020

Weblink: <https://www.indiaalliance.org/fellowships/early-career-fellowships>

Application process: Online via India Alliance portal IASys

Agency: Petroleum Conservation Research Association

Scheme: R&D Projects

Scheme remit: To encourage R&D efforts for development of fuel/energy efficient technologies and processes Focus areas: Petroleum Conservation, energy efficiency, environment protection in the Industrial, Agricultural, Transport and Domestic sectors Streams: (i) Development of a new or improved product, (ii) development of new or improved process, (iii) indigenization of imported technology, (iv) Technology development projects, (v) technologies for common use, and (vi) converting original ideas into prototypes

Budget provisions: Personnel, consultancy, running costs, testing, trials and patenting

Duration: 3 years

Deadline: Rolling call

Weblink: <http://www.pcra.org/sectors/index/27>

Application process: Proposals in specified format to be emailed to PCRA

FUNDING OPPORTUNITIES: INTERNATIONAL EXCHANGE AND COLLABORATIONS

Agency: ASEAN-India Science & Technology Development Fund (AISTDF)

Scheme: ASEAN-India Collaborative R&D Scheme (updated details)

Scheme remit: To support collaborative Research & Development (R&D) between researchers in India and ASEAN countries (including Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam)

Thematic focus areas: Bio-medical devices related to COVID-19 pandemic, Nano-Technology and Advance Materials, Cyber physical systems, Artificial Intelligence and ICT

Budget provisions: Mobility funds, modest funds for equipment and consumables, 1 JRF on Indian side

Team structure: Researchers in India and at least 2 ASEAN member countries

Duration: 24 months

Deadline: 31st October 2020

Weblink: <https://aistic.gov.in/ASEAN/HomePage>

Application process: Online, via website

FUNDING OPPORTUNITIES: INTERNATIONAL EXCHANGE AND COLLABORATIONS

Agency: Newton-Bhabha Fund, in collaboration with DBT, DST and ICSSR

Scheme: Newton-Bhabha Fund PhD Placement Programme 2020-2021

Scheme remit: To support skill-building of doctoral scholars through cross-border research collaborations in higher education institutions and short-term placements for Indian scholars at UK Universities and research institutions

Themes: (i) Sustainable cities and urbanisation, (ii) Public health and wellbeing, (iii) Energy-water-food nexus, (iv) Understanding oceans, (v) High value manufacturing and (vi) Big data Research focus: Science, Technology, Engineering and Mathematics (via DST), Life Sciences (via DBT) and Social Sciences (via ICSSR)

Budget provisions: Funding will be provided to Indian Scholars as follows: British Council will support bench fees in the UK, stipend in the UK at 1300 GBP per month and DBT/DST/ICSSR will provide a travel grant of up to 1 lakh INR

Duration: Two to four months

Deadline: 16th August 2020

Weblink: <http://dbtindia.gov.in/sites/default/files/Newton%20Bhabha%20Fund%20PhD%20Placement%20Call%20Guidelines.pdf>

Application process: Online, via a British Council application form

Agency: Shastri Indo-Canadian Institute (SICI)

Agency remit: To support intellectual and cultural linkages between India and Canada, through research, dialogue and exchange

Schemes Open: Shastri Mobility Programme (SMP), Shastri Programme Development Grant (SPDG), Shastri Membership Development Grant (SMDG), Shastri Publication Grant (SPG), Shastri Institutional Collaborative Research Grant (SICRG), Shastri Faculty Development Programme for Vocational Education (SFDPVE)

Deadline: 17 August 2020

Weblink: <https://www.shastriinstitute.org/grants-awards-and-opportunities-for-indian-canadian-scholars>

Application process: Online, via SICI portal

SICI COVID-19 Policy regarding awards: <https://www.shastriinstitute.org/sites/default/files/Covid-19-policy-regarding-SICI-awards.pdf>

SICI membership: Ahmedabad University will need to apply to be an Indian member institution

FUNDING OPPORTUNITIES: ACADEMIA-INDUSTRY INTERACTIONS

Agency: Biotechnology Industry Research Assistance Council (BIRAC)

Scheme: Promoting Academic Research Conversion to Enterprise- Academic Innovation Research (PACE-AIR)

Scheme Remit: To promote development of proof-of-concept (PoC) for a process/product by academia with or without the involvement of industry

Applicant eligibility: Primary applicant should be from academia

Budget provisions: Rs 50 lakhs

Duration: 18 months

Deadline: 31st August 2020

Weblink: https://www.birac.nic.in/desc_new.php?id=286

Application process: Online via BIRAC website

FUNDING OPPORTUNITIES: ACADEMIA-INDUSTRY INTERACTIONS

Agency: Biotechnology Industry Research Assistance Council (BIRAC)

Scheme: Promoting Academic Research Conversion to Enterprise- Contract Research Scheme (PACE-CRS)

Scheme Remit: Aims at validation of a process or prototype (developed by the academia) by the industrial partner

Applicant eligibility: Applicant from Academia has to be the Primary Applicant with one or more partners of which at least one is a company

Budget provisions: While funding is provided to the academia for In-House research which forms a part of validation of the proof of concept, funds are provided to the industrial partner for validation.

Deadline: 31st August 2020

Weblink: https://www.birac.nic.in/desc_new.php?id=286

Application process: Online via BIRAC website

Agency: Biotechnology Industry Research Assistance Council (BIRAC)

Scheme: Biotechnology Industry Partnership Programme (BIPP)

Scheme Remit: An Advanced Technology Scheme for high risk, transformational technology/ process development from proof-of-concept to validation leading to high value product commercialization Focus areas: a) Drugs including drug Delivery, b) Vaccines and clinical trials, c) Biosimilars & stem cells, d) Devices & Diagnostics, e) Agriculture, f) Industrial Biotechnology including Secondary Agriculture and g) Bioinformatics & facilities that virtually cover every aspect of Biotechnology.

Team structure: Consortium can include companies and academia

Budget provisions: While funding is provided to the academia for In-House research which forms a part of validation of the proof of concept, funds are provided to the industrial partner for validation.

Deadline: 31st August 2020

Weblink: https://www.birac.nic.in/desc_new.php?id=216

Application process: Online via BIRAC website

FUNDING OPPORTUNITIES: OTHERS

Agency: Indiabioscience

Scheme: 1st Indiabioscience Outreach Grant

Scheme remit: To support interactions between the scientific community and the broader public via strategies such as sharing scientifically reliable information, fostering a scientific temperament, and increasing the accessibility of the scientific community/research, particularly via digital tools.

Ideas: <https://indiabioscience.org/meetings/1st-indiabioscience-outreach-grants/ideas-to-begin-with>

Applicant eligibility: YIM and Regional YIM alumni as Principal Investigators

Team structure: Collaborations with educators, students, scientists or science communicators are permissible and preferred

Budget provisions: 1 lakh INR

Duration: 12 months

Deadline: 30 July 2020

Weblink: <https://indiabioscience.org/meetings/1st-indiabioscience-outreach-grants>

Application process: As per details on website and to be emailed as a single PDF to applications@indiabioscience.org

FUNDING OPPORTUNITIES: OTHERS

Agency: DBT/Wellcome Trust India Alliance, in collaboration with European Molecular Biology Organization (EMBO)

Scheme: India EMBO Lecture Course

Scheme remit: To provide financial support towards a course for providing PhD students and postdoctoral researchers with background and underlying concepts, thereby making the topic accessible to scientists with diverse scientific background.

Research focus: The course should be tailored towards a topic in the life sciences

Budget provisions: 35,000 Euros and additional 5.5 lakh INR towards travel grants, childcare support and training workshops

Deadline: 1 August 2020 **Weblink:** <https://www.indiaalliance.org/news/467>

Application process: Online application form accessible via <https://www.embo.org/funding-awards/courses-workshops/india-embo-lecture-courses#about>

Additional information: Information on the first set of awards to the scheme at <https://www.indiaalliance.org/news/443>

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All requests for research funding from internal and external sources should be sent to the University Research Board for approval, via the Grants Portal.

Details of intramural funding available via Ahmedabad University are available in the University Research Board Policy Document. This includes Start-up grants, Seed grants, University Challenge grants, Teaching Material Development/Innovation grants and Conference Travel support.

Previous editions of the Research Horizons Newsletter and Funding compendium are archived on AURIS.

For suggestions on the Funding compendium, please contact the Dean of Graduate School and Research at urb@ahduni.edu.in.