

RESEARCH HORIZONS

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In This Issue

Network analysis of US Presidential Policy Decision Directives: Keita Omi and Amit Nanavati

Awarded grants

Annual Convention of the National Academy of Psychology: Nithin George

Are Terrorists Responsible for Anti-immigrant Sentiments? Evidence From Europe: Ishita Tripathi

Publications

Gen Next: Ankit Naik

Indian Society of Evolutionary Biologists Conference: Subhash Rajpurohit

Research seminars



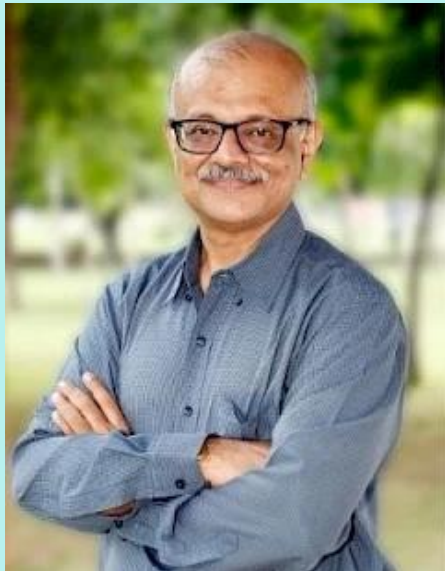
Ahmedabad
University

Network Analysis of US Presidential Policy Decision Directives

Keita Omi and Amit A. Nanavati



Keita Omi is an Assistant Professor in the School of Arts and Sciences. He specialises in developing the study of foreign policy, intelligence, and government leadership.



Amit A. Nanavati is a Professor in the School of Engineering and Applied Science. His research interest is in network science and data science.

The declassified Presidential Policy Decision Directives (PPDD) articulate the difficult task of formulating and reformulating U.S. government secrecy and secrecy in general. Given this, the PPDD project is aimed at generating and disseminating data on the formal US policy decisions in order to develop the research programme and investigate the decision-making process and policy outcomes of variance in the creation of US foreign policy arrangements. PPDD provides detailed information on the content of formal US national security decisions, allowing researchers to explore the causes and effects of variation in the design of US policy-making. The PPDD data focuses on who is involved and what decision was made.

We hope this data will prove useful to scholars in a wide range of disciplines in presidential studies, foreign policy analysis, national security council and national security advisor studies, and international relations in a much broader sense. In addition to detailed information about the contents of respective government documents, PPDD provides a novel and complete list of policy documents.

We present some of the results of the network analysis and identify some of the kinds of important research questions that the variables included in the PPDD dataset may help to answer for US presidential studies. Our sample research findings of network analysis allow to see the group dynamics that operate among the Foreign Policy Executives (FPE) listed on respective PPDD documents.

Power relationships among FPE are asymmetrical. Major political actors, namely the FPE, such as the Secretary of State, the Secretary of Defense, the Director of the Central Intelligence Agency (CIA), the Chairman of the Joint Chiefs of Staff (JCS), and a few others seemingly received PPDD from the President and the National Security Advisor more frequently than other actors in the US decision-making. Each US administration seems to have unique group dynamics.

Our work visualizes relationships and interactions of FPE in their policy-making process. For a given PPDD, we code who is listed, and how many FPE are listed. Therefore, our PPDD dataset provides remarkably distinct codes for the number of FPEs and each FPE member to distinguish respective PPDD cases across different U.S. presidencies.

Network Analysis Results

We have a list of PDDs with the following fields: pddid, president, sent1, sent2, . . . ,sent36, cc1, . . . ,cc8. The number following "sent" represents the importance of the receiver for the particular PDDs. The lower the number is, the higher the importance. This is the same for "cc" field. For example, if Secretary of State is sent1 for doc id 303 NSAM 301 issued under the Johnson administration, and Secretary of Defense is sent2, then Secretary of State is a more important recipient of this message than Secretary of Defense. Also, sent3, namely, Director of the Central Intelligence Agency, is considered a more important recipient than cc1, Jessup, cc2, Johnson, and cc3, NSC who are listed as copy to (cc) on the PDD.

Based on this, we draw a graph $G = (V,E,W)$, where V denotes each potential recipient of a PDD, and E is the set of directed arrows from u to v (both in V). Further, W captures the number of times u was a more important recipient than v . Note that it is possible that in some PDDs, v was a more important recipient than u (SecretaryofDefense --5 (times)-- > SecretaryofState), while in some others, the opposite is true (SecretaryofState --9 (times)--> SecretaryofDefense). We visualize such graphs for each president separately and then with the data for all presidents taken together.

The visualization is done as follows. The thickness of an edge from u to v represents the number of times u was a more important recipient than v . We also ran community detection algorithms to identify communities (similar to clusters) in the network. Nodes of the same community are depicted in the same color. The size of the node depicts its relative importance with respect to other nodes (denoted by the node's out-degree).

Figure 1 shows the network for the Nixon Administration. Since "Treasury" appears in the "cc" field too, we add the "cc" as a prefix and represent it as a separate node. Figure 2 shows the network for the Ford Administration. Notice the difference in the number of communities, and the relative sizes of the nodes.

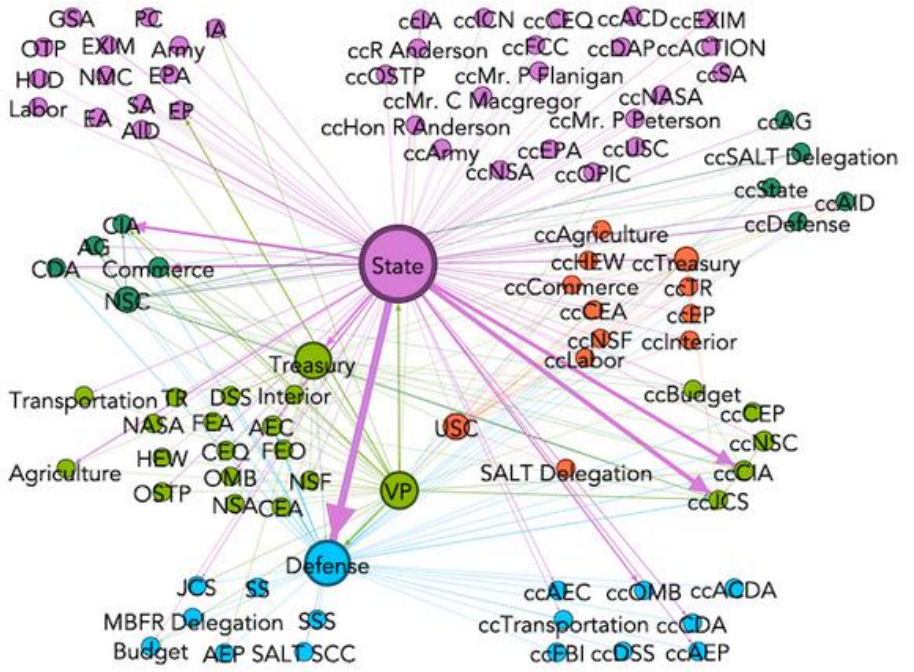


Fig. 1. Data Visualization of FPEs in National Security Decision Memorandum during the Nixon Administration.

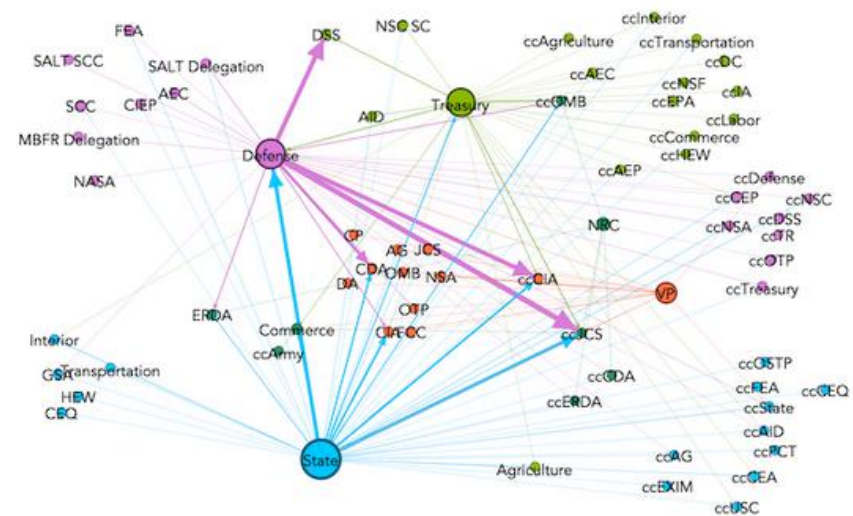


Fig. 2. Data Visualization of FPEs in National Security Decision Memorandum during the Ford Administration.

Awarded Grants

(for the period January - March, 2023)



Ahmedabad University Grants

Start-up Grant

Soumen Ghosh, School of Arts and Sciences

Study of ion beam energy generated by the double layers in expanding radio-frequency plasma

INR 25,00,000; 3 years

Through this grants, Professor Ghosh will conduct investigations to find an experimental technique to verify the formation of stronger double layers beyond the strength predicted by the conventional plasma sheath theory. A model will be prepared to study the dependence of the double layer strength with the electron energy distributions.



Seed Grant

Rahul Singh, Amrut Mody School of Management

The competitive effects of R&D tax incentives: evidence from India

INR 2,30,000; 1 year

Professor Singh has proposed to use this grant to examine the causal link between R&D tax credits and R&D expenditure of firms in a developing country and analyze the effect of R&D tax credits on productivity, markups and prices.



Samvet Kuril, Amrut Mody School of Management

Can machines help in making organizations more humane?
(chatbots in organizations for bullying and harassment)

INR 5,00,000; 2 years

In this project, Professor Kuril will explore the possibility of using AI technologies, such as chatbots or other artificial intelligence systems, to create a more humane work environment in organizations. In particular, this research aims to understand the application of an innovation, that is technology-enabled chatbots in organizations, to improve harassment reporting.



Report: Annual Convention of the National Academy of Psychology

Nithin George

Ahmedabad University hosted the 32nd Annual convention of the National Academy of Psychology (NAOP) from 03 to 05 March 2023. Being the first in-person convention of NAOP after the pandemic, the broader theme of the convention was "towards building a resilient and responsible world". This was also the theme of Professor Lori Foster's lecture, in which she outlined the relevance of applied psychology in solving complex global challenges, such as climate change. This was followed by a special keynote speech by Professor Ramadhar Singh on ways to build a responsible research environment. Professor Janak Pandey's keynote speech was based on his recently published book, Nature and Dynamics of Social Influence. Researchers from diverse areas within Psychology delivered invited lectures and symposia. The convention attracted a large number of enthusiastic students, who also presented their research findings as posters and oral presentations.



Pre-and post-convention workshops on emerging methods in psychological research and action were also held. The workshops offered training in tools and techniques used in qualitative and quantitative psychological research. Students presented their research findings in thematic sessions that focussed on social challenges relating to well-being, gender diversity, poverty and climate change.

The convention also hosted eminent practitioners from fields such as forensic psychology and child psychology. In her invited lecture, forensic psychologist Professor S L Vaya talked about the limits and possibilities of forensic tools. Professor Rama Ratnam talked about the need to explain the proximate and ultimate causes of behaviour, underlining the relevance of the evolutionary perspective in psychology. The plenary sessions addressed themes such as hegemonic tendencies that confront psychological research in India and ways to navigate cultural challenges in the debates on research ethics.

The striking feature of the convention was the breadth of ideas presented. The convention was a platform for people who study and practice psychology from various disciplines to exchange views. The convention demonstrated the extent of interdisciplinary dialogues that exist in the study of human mind and marked a future direction for psychology where answering questions about human mind contributes to social well-being and a sustainable environment.



Are Terrorists Responsible for Anti-immigrant Sentiments? Evidence From Europe

Ishita Tripathi



Ishita Tripathi is an Assistant Professor in Amrut Mody School of Management. She studies political economics, crime, law and economics, cultural economics, and microeconomics.

In this issue of Research Horizons, Professor Tripathi shares her recent work on the influence of a terrorists' identity on people's attitude towards immigrants.

Professor Tripathi's publication based on this research can be accessed at: Tripathi, I. (2022) Are terrorists responsible for anti-immigrant sentiments? Evidence from Europe. *Economic Modelling*, 115, 105959.

<https://doi.org/10.1016/j.econmod.2022.105959>.

The rising public support for the German far-right populist party - Alternative für Deutschland (AfD), Britain voting in favour of Brexit, the near annulment of DACA (Deferred Action for Childhood Arrivals) in the USA, the genocide of the Rohingya Muslims in Myanmar - they all have one common denominator, and that is rising intolerance towards immigrants. Economists have long been studying the root of anti-immigrant sentiments, as they not only influence electoral outcomes but also shape national policies. Although researchers have identified both economic and non-economic determinants of anti-immigrant attitudes, terrorism has remained a relatively less explored area in this respect. I have studied whether terrorists of foreign nationality can increase intolerance towards immigrants, regardless of their religious affiliations. If so, how long does this effect persist and how far does it reach? For this, I analyse the opinions of more than 250,000 individuals belonging to 32 European countries over the period 2002 to 2019. I find that exposure to terrorist attacks by foreign perpetrators significantly reduce one's pro-immigrant attitude. But this detrimental effect is quite short-lived and relatively localised. I observe that the impact is maximum if an individual is surveyed within the first 2 months from the attack date, then it gradually diminishes after 3 months before completely disappearing after 6 months. Even the impact is found to be stronger when the attack site is located within the same country where a respondent lives, instead of any of the neighbouring countries. These findings provide evidence that although the risk of being exposed to a terrorist attack is low immediately after one has occurred in their own country, individuals perceive it to be much larger. As a result, their fear of being the next victim instigates a negative sentiment towards the immigrants.



On 13 February 2023, the University Grants Office arranged an interactive session between the members of the University faculty and representatives of an international research funding agency, the International Human Frontier Science Program Organization (HFSP). HFSP was represented by Dr Guntram Bauer, Director of Science Policy and Communications, who introduced the organization's mandate, policies and funding principles. The presentation was followed by an engaging discussion with the speaker.

Publications

(for the period January - March, 2023)



Articles in Refereed Journals

Mansuri, A., Kansara, K., Raiyani, D., Mazmudar, D. & Kumar A. (2023). New insight into long-term effects of phthalates microplastics in developing zebrafish: Evidence from genomic alteration and organ development. *Environmental Toxicology and Pharmacology*, 99, 104087-104097. <https://doi.org/10.1016/j.etap.2023.104087>.

Singh, U., Shah, K., Kansara, K., Kumar, A. & Bhatia, D. (2023). A Novel Class of Greenish-Yellow Emitting Carbon Dots Stimulate Collective Cell Migration and 3D Uptake In Vivo. *ChemNanoMat*, 9, 1-13. <https://doi.org/10.1002/cnma.202200572>.

Naik, S. & Gajjar, K. (2023). Applying and Evaluating Engagement and Application-Based Learning and Education (ENABLE): A Student-Centered Learning Pedagogy for the Course Database Management System. *Journal of Education*, 203(2), 410-422. <https://doi.org/10.1177/00220574211032319>.

Patel, M., Madhavan, V., DasGupta, S. & Kumar, S. (2023). Performance Persistence and Style Consistency of Indian Fixed-Income Mutual Funds – A Longitudinal Study. *International Review of Financial Analysis*, 86. <https://doi.org/10.1016/j.irfa.2023.102535>.

Shaik, M., Varghese, G. & Madhavan, V. (2023). The Dynamic Volatility Connectedness of Global Financial Assets during the Ebola & MERS Epidemic and the COVID-19 Pandemic. *Applied Economics*, 55 (27), 3184-3193. <https://doi.org/10.1080/00036846.2022.2109581>.

Aggarwal, M., Chakrabarti, A., Chatterjee, C. & Higgins, M. (2023). Research and market structure: Evidence from an antibiotic-resistant pathogenic outbreak. *Research Policy*, 52(1). <https://doi.org/10.1016/j.respol.2022.104633>.

Aggarwal, M., Chakrabarti, A. & Chatterjee, C. (2023). Movies, stigma and choice: Evidence from the pharmaceutical industry. *Health Economics*, 32 (5), 1019-1039. <https://doi.org/10.1002/hec.4653>.

Vaishya, A., Raj, S., Singh, A., Sivakumar, S., Ojha, N., Sharma, S., Ravikrishna, R. & Gunthe, S. (2023). Black carbon over tropical Indian coast during the COVID-19 lockdown: inconspicuous role of coastal meteorology. *Environmental Science and Pollution Research*, 30, 44773-44781. <https://doi.org/10.1007/s11356-023-25370-5>.

Kanth, A. & Soni, A. (2023). Application of nanocomposites for conservation of materials of cultural heritage. *Journal of Cultural Heritage*, 59, 120-130. <https://doi.org/10.1016/j.culher.2022.11.010>.

Published Books

Kumar, A. (2023). *Environmental Toxicology and Ecosystem*. Boca Raton: CRC Press.

Madhavan, V. & Ray, P. (2023). *Law of One Price: A Chronicle of Dually Listed Indian Stocks*. London and New York: Routledge.

A paper presented by Arunima Singh and Swapnil Shastri, won the award for the best paper presentation at the 2nd International Conference on Advances in Water Treatment and Management (ICAWTM-23) held at Pandit Deendayal Energy University, Gandhinagar from 11 to 12 March 2023. Ms Singh and Mr Shastri are, respectively, a PhD and a BTech student in the School of Engineering and Applied Science.

Ankit Naik, School of Arts and Sciences



Ankit Naik is a PhD student in the Biological and Life Sciences division of the School of Arts and Sciences. He is a recipient of the INSPIRE Fellowship from the Department of Science and Technology, Government of India. For his thesis, he is working towards unraveling the complex biology of cancer and designing ways to translate those discoveries into applications. In this issue of the Research Horizons, he shares his experience of being a student at Ahmedabad University, the support received here, and his future plans.

I was born in Mumbai and grew up there. I completed a bachelor's degree in Biotechnology from Mumbai University and MSc in Biotechnology at the Institute of Science, Nirma University. I am currently a fourth-year doctoral student and an INSPIRE Fellow in Professor Noopur Thakur's lab in the Biological and Life Sciences division here at Ahmedabad University.

I was motivated to pursue research because it offered an opportunity to contribute to understanding the biology of cancer and bridging the knowledge gap. Cancer is a complex disease that affects millions of people. I am inspired by the challenge of understanding this disease and turning basic research findings into clinical applications that can help patients.

My primary expectation from the PhD programme is to develop the deep understanding to ask relevant questions and acquire the training required to answer them. Another expectation is that I will design and conduct original research that expands on the existing knowledge and that those findings could be translated to benefit the society. Finally, I also expect to gain some experience in teaching and mentoring students.

I was drawn to Ahmedabad University for several reasons. Firstly, it has a reputation for academic excellence and commitment to research and innovation. Secondly, the programmes and courses offered here align well with my academic and career interests. I am confident that the knowledge and skills I will acquire here will be invaluable while pursuing my future goals. The diverse and inclusive community at the University has enriched my learning experience and provided me with opportunities to engage with people from different backgrounds and perspectives. Overall, I am grateful for my experiences here.

Outside academia, I love going on Solo-Bike rides and exploring different places. I also love to binge-watch shows on OTT platforms.

Moulie Ghosh has been awarded the Rasila Kadia Excellence in Research Award. Ms Ghosh is a PhD student in the School of Engineering and Applied Science under the supervision of Professor Sridhar Dalai. The award includes financial support of INR 1,75,000 for presenting a paper in the 14th International Conference of Surfaces, Coatings and Nanostructured Materials to be held in Greece from 10 to 14 July 2023.

The **Rasila Kadia Excellence in Research Award** is intended to support global exposure of doctoral students at Ahmedabad University by providing financial support for participation in prestigious international conferences. Each year two students are supported for presenting a paper at an international conference. For conferences to be held between 01 March and 31 August, applications are accepted till 01 February and for conferences between 01 September and 01 March of the following year, till 01 August. Applications are to be submitted to the Chair of the respective PhD programme.

Report: Fourth Conference of the Indian Society of Evolutionary Biologists

Subhash Rajpurohit

Jointly organized by the Indian Society of Evolutionary Biologists (ISEB) and Ahmedabad University, "Revolutionizing Darwinian synthesis: Fresh Perspectives and Future Challenges", the fourth Indian evolutionary biology conference was held at Ahmedabad University from February 9-11, 2023. About 200 renowned evolutionary biologists, researchers, and students worldwide attended the conference. The conference is the first evolutionary biology meeting to be held after the pandemic which was held in-person.



Professor Pankaj Chandra, Vice Chancellor, Ahmedabad University inaugurated the conference with his welcome address. This was followed by a keynote address by Professor Raghavendra Gadagkar, DST Year of Science Chair and Professor, Centre for Ecological Sciences, Indian Institute of Science, Bangalore, and Founding President of ISEB. He remarked, "Nobody lets students and young researchers think independently and at leisure. But it is crucial to let them. After all, science is a work in progress, not built in a day, and research must be allowed at its own pace. We could do in-depth research because we gave it time and challenged what we read in scientific literature and not merely accepted it." He urged young students and researchers to question everything.



The conference was a three day event with an interesting line up of sessions. The general structure of the event was plenary, selected and invited talks followed by a poster session in the evening. Plenary speakers included Allen Gibbs, Professor, University of Nevada, USA; Paul Schmidt, Professor, University of Pennsylvania, USA; Renee M Borges, Professor, Indian Institute of Sciences, Bengaluru, India; Amitabh Joshi, Professor, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India; and Jun-Yi Leu, Distinguished Research Fellow, Academia Sinica, Taiwan. They not only presented broad perspectives of their research but also hinted at interesting insights which could be pursued further. Interspersed in between was a popular science talk, "Unravelling Rivalry: In Plants and Microbes" by Professor B Uma Shankar in which he shared several anecdotes of plant-microbe world and their research potential.

More than forty researchers presented their work through talks arranged by invitation and abstract selection. Early career researchers and post-doctoral fellows were given fair representation along with established researchers. Poster presentations included work from researchers at all career stages in evolution, ecology, climate change, pandemic, behaviour, taxonomy, organismal physiology, and rapid evolution.

In his address, Professor LS Shashidhara, President, the International Union of Biological Sciences (IUBS), warned about the possible impact of climate change on life and future challenges. He also shared the body's science outreach initiatives.



An engaging panel discussion on a contentious topic, "What is wrong with how we teach evolution and how do we fix it?" was held on the last day moderated by Professor MC Arunan with Professor Amitabh Joshi, Professor Milind Wate, Dr T N C Vidya, and Dr Geetanjali Mishra as panelists who expressed their opinions on evolutionary biology education reforms and need to change the mindset among masses. Several opinions converged in revising the syllabi at the undergraduate level such that students learn more from hands-on training and pose questions from the wide wild world.



The Conference was supported through grants received from the Science and Engineering Research Board (SERB) of the Government of India and the Gujarat State Biotechnology Mission (GSBTM).

Research Seminars

(for the period January - March, - 2023)



School of Arts and Sciences

Faculty Research Seminar

Aditya Chaturvedi, Emory University, USA. To Serve or Not to Serve the Deity: A Hermeneutic Approach to Ethnography of Everyday Devotion. March 1, 2023.

Pravakar Paul, University of Iowa, USA. A quantum invariant of Knot: Khovanov homology. March 2, 2023.

Jonathan Spiegler, Michigan State University, USA. Democratic Fatalism: Tocqueville, Racism, and Democracy. March 31, 2023.

Seminar and Lecture Series

Nancy Neiman, Yale University, USA. Markets community and just infrastructures. January 13, 2023.

Maya Jasanoff, Harvard University, USA. Monumental Battles: What Should We Do With a Controversial Past? January 18, 2023.

Anne Cheng, Institut Universitaire de France, France. The Chinese Claim for University. February 10, 2023.

Srinivas Reddy, Brown University, USA. Six Thoughts on Indian Classical Music and Modernity. February 15, 2023.

Lori Foster, North Carolina State University, USA. Applying Behavioural Science to Sustainable Development. March 4, 2023.

Prachi Deshpande, Centre for Studies in Social Sciences, Calcutta. Cursive Histories: the Modi script, Writing and the Marathi language in history. March 17, 2023.

Pankaj Joshi, Ahmedabad University, Ahmedabad. At the Heart of Our Galaxy: Shadows and the Singularity. March 29, 2023.

Research Seminar Series

Nisarg Mehta, University of Chicago, USA. The Garb of Modernity: The NRI Gaze and the Indian Developmental State. January 25, 2023.

Vikas Trivedi, European Molecular Biology Laboratory (EMBL) in Barcelona, Spain. Networks, forces and transitions: A synthetic approach to understand axial emergence in multicellular systems. February 7, 2023.

Kunal Arekar, Indian Institute of Science, Bangalore. Systematics, phylogeography, and evolution of Indian langurs (Primate: Colobinae). February 8, 2023.

Suhel Quader, Nature Conservation Foundation, Mysore. How citizen science can change the world. February 16, 2023.

Hema Somanathan, Indian Institute of Science Education and Research, Thiruvananthapuram. Bee-flower interactions: Across species and landscapes. February 17, 2023.

Intersections Seminar Series

Shilpa Pandit and Susanta Tewari, Ahmedabad University, Ahmedabad. Music, Aesthetics, and Software Architectures. March 15, 2023.

School of Engineering and Applied Science

Mona Jani, Jagiellonian University, Poland. Nanodiamond with Nitrogen-Vacancy color centers as Quantum probes for nanoscale Quantum Sensing and advanced Magnetometry. January 6, 2023.

Ashish Agrawal, National Institute of Technical Teachers Training and Research, Chennai. Influence of curricular features on engineering students' learning experiences. January 16, 2023.

Ganesh Swain, Indira Gandhi Institute of Technology, Sarang, Odisha. Biodegradation of phenol and its derivatives in packed and moving bed bioreactors using *Bacillus* species isolated from petroleum site. January 20, 2023.

Hukum Dewangan, CSIR-Central Mechanical Engineering Research Institute, Durgapur, West Bengal. Damage Modeling of Laminated Composite Flat/Curved Panels and its Effects on Structural Behavior. January 23, 2023.

Harmeet Kaur, CSIR – Central Scientific Instruments Organisation, Chandigarh. Optoelectronic applications of luminescent metal-organic frameworks (MOFs)-based composite materials. March 7, 2023.

Ramya Srinivasan, Pandit Deendayal Energy University, Gandhinagar. Holistic treatment of emerging and persistent contaminants in water and wastewater. March 9, 2023.

Rupsa Bhaumick, Louisiana State University, USA. Climate Data Analytics Utilizing Earth Observations and Geospatial Technologies. March 10, 2023.

J Adinarayan, Indian Institute of Technology Bombay, Mumbai. Disruptive Innovations in Precision Agriculture. February 3, 2023.

Amrut Mody School of Management

Faculty Recruitment Seminar

Arti Omar, Indian Institute of Technology Madras, Chennai. Asymmetric effects of noise in Merton default risk model: Evidence from emerging Asia. January 3, 2023.

Sudeep Rohit, Indian Institute of Management Tiruchirappalli, Tiruchirappalli. Thinking, feeling and coping by BoP healthcare consumers: policy-based intervention in an emerging market. January 4, 2023.

Garima Agarwal, Delhi School of Economics, New Delhi and University of Göttingen, Germany. Sanitary Napkin Distribution and Girls' School Participation - Evidence from a Public Program in India. January 30, 2023.

Aranya Chakraborty, McGill University, Canada. Network-Based Targeting with Heterogeneous Agents for Improving Technology Adoption. February 16, 2023.

Aditi Singh, Brown University, USA. What Determines Household Expectations? February 20, 2023.

Tanya Jain, Indian Institute of Management Bangalore, Bangalore. Debt Contract Enforcement and Product Innovation: Evidence from a Legal Reform in India. February 21, 2023.

Sumit Saurav, Indian Institute of Management Ahmedabad, Ahmedabad. Impact of Embedded Leverage on Trading Activity in Spot, Options, and Futures Markets. March 28, 2023.

Research Seminar

Bhaswati Ganguli, University of Calcutta, Kolkata. Experiences in environmental modelling. January 18, 2023.

Mihkel M Tombak, University of Toronto Mississauga, Canada. Hotelling Bound -Pricing and Location under Income Constraint. January 25, 2023.

Kumar Aniket, University College London, UK. Markets, Space and Infrastructure. February 8, 2023.

Sandeep Dayal, Cerenti Marketing Group, LLC, USA. Industry & Academia: Conversations & Collaborations. March 01, 2023.

Shobha Das, Krea University, Sricity, Andhra Pradesh. Artisan Entrepreneurship in Subsistence Marketplaces: Examining a multi-pronged initiative. March 22, 2023.

Book talk

Atul K Shah. Inclusive and Sustainable Finance: Leadership, Ethics and Culture. January 11, 2023.

C Rangarajan. Forks in the Road. January 10, 2023.

