



INGAGE & INNOVATE

August 2017 Issue



www.winstepforward.org

IN THIS ISSUE

Community – it's a buzzword we hear a lot, in political speeches, on the news, and even in job offers! Yet, to a significant extent, community may determine your successive meaningful life choices.

During your Khorana or Bose internships in the United States, you experienced communities within communities - members of your new lab, your host institution, and the places you visited. You yourselves were actively engaged in creating a community of your peers, enthusiastically seeking out current and former Khorana Bose Scholars with whom you could connect and share. We know from experience that many of you will preserve and nurture these relationships.

As you settle into your careers, as you watch your children grow year by year, as you become more aware of your own growth, the somewhat amorphous *idea* of community will solidify into a wish for an *ideal* community. The urge to experience and belong to a more visionary community will become stronger. And as you grow into a unique community of thinkers, creators, initiators, and entrepreneurs, we hope you, the Khorana Bose community, will "be the change you want to see in the world." We look forward to it.

Whether you contribute to community locally, nationally, or globally, scientifically or socially, this quarterly publication aims to share real life stories of individuals and groups who are engaged and innovating networks of communities everywhere.

Here are new developments since the last newsletter; (1) We have started to form Alumni Chapters at institutions like UIUC, Boston, etc. (2) Sci-ROI is having their second YIM Chicago event and (3) Industrial partnerships.

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With Best Wishes,

Aseem Ansari

Professor, Chemical Genomics & Synthetic Biology
Founder-Director, Khorana and S.N. Bose programs



MEET AND GREET

US Bose Scholars In India

Hannah Lider



Hannah Lider is a 2015 US Bose scholar, who completed her summer internship at the National Center of Biological Sciences, Bangalore. In the summer of 2016 Hannah returned to India, this time traveling on the prestigious Critical Language Scholarship (CLS), which allowed her to study Hindi in India. Hannah said that she loved her time in India and wanted to “strengthen her ability to connect with the community.” Through this program, Hannah stayed with a host family, took required Hindi courses, and even volunteered teaching English. She also volunteered her time at a local non-profit! While traveling the area, Hannah visited Barefoot College, a non-profit geared to teaching local women self-empowering technologies (include link to Barefoot College). She was amazed by how the Barefoot College campus was run with 100% solar energy and taught women from around the world technological skills that not only allowed them to become more financially stable, but also strengthen their respective communities. Hannah's story highlights how her experience as a U.S. Bose Scholar fueled her desire to connect on a deeper level with the Indian community. We look forward to seeing how Hannah moves forward with her journey after two summers of India.

Daniel Howard

Daniel Howard is a 2015 US Bose Scholar who is currently completing his PhD in Mathematics at Notre Dame. In the summer of 2015, Daniel studied at Tata Institute for Research, Centre for Applicable Mathematics, in Bangalore. He recalled his experience



there helped solidify his decision to study mathematics further. Daniel graciously attended and presented at the 2017 Orientation, where he shared the impact of his internship in India. Daniel plans to return to India through a program with Fulbright. Coincidentally, his current roommate is a Fulbright scholar from India. It's wonderful to see two years afterwards U.S Bose Scholars engaged with the Khorana Bose Scholars!

INDUSTRY

Exploring the microcosmos of Palampur with paper microscopes!

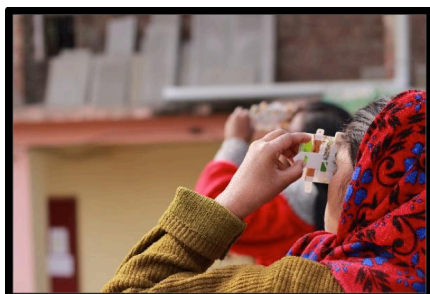
Kanika Khanna is an Alumni Khorana scholar who has recently been involved in a nonprofit and has shared this story with us: I am intrigued by the molecular details of life and the unique patterns exhibited in a variety of forms by nature. Using simple and sophisticated tools to visualize these mysterious details have always stimulated my mind. Being a Khorana scholar in 2013, I was fortunate to get exposure to research in biology in a very stimulating setting and that propelled me to continue my passion for research and currently I am pursuing my doctoral studies at University of California, San Diego to unravel the secrets of a class of bacteria that forms spore as a response to harsh environmental conditions, using microscopy techniques wherein you can visualize the molecular details of this process to a few nanometer resolution (and for all purposes, these spores are essentially immortal, staying dormant for thousands of years until they germinate again. Amazing, isn't it!)

During this time, I stumbled upon research led by Prof. Manu Prakash at Stanford who is working on developing 'frugal' science tools for community to generate curiosity and enthusiasm for science in everyone's mind and for cheap diagnostic research. One such recent 50-cent tool is known as 'foldscope' and it is essentially an origami-based paper microscope. Yes, you can fold a piece of paper, attach a lens to it and go about exploring your surroundings! The lab was kind enough to gift me 50 paper microscopes to organize a workshop in an NGO called 'Aavishkaar' in nature's lap in Palampur (Himachal Pradesh, India). The word Aavishkaar means 'invention'. True to their name, they work with middle and high school kids to nurture their curious minds with hands-on experiences and experiments in science and maths. I was fortunate to be a small part of their camp organized for 8th standard girls from Nari Gunjan, another NGO working for the untouchable communities in Bihar. Together with the staff at Aavishkaar, I organized a session with the 20 girls at the camp where we folded the microscope step by step to make it into a usable form. Together, we saw samples of several tissues, plants, insects, yoghurt, lice from their hair etc. One of the moment which specially stayed with me was when a girl was so intrigued she pricked her finger so that she could see her blood under the microscope. My current hope is the team at Aavishkaar will incorporate foldscope into their training modules for their subsequent training camps as well as spread word about it in various teacher training workshops and conferences involving govt's education sector which they attend so that it becomes a teaching method in public and private schools in India with a multiplying effect!

I am currently trying to work with them remotely from USA as much as I can via skype conferences with the new batch of kids that comes along! The four days I spent with Aavishkaar made me realize that the underprivileged kids are the ones who understand the problems of the society at the grassroot level and hence equipping them with the right resources and mindset can help us tackle these issues. And in this regard, education in science and maths through innovative teaching methods will go a long way.

About Aavishkaar: <http://www.aavishkaar-palampur.org/>, <https://www.facebook.com/AavishkaarPalampur/?fref=ts>

About foldscope: <https://microcosmos.foldscope.com/>, <https://www.facebook.com/foldscope/>



ACADEMICS

Three Former Khorana Bose Scholars Work Published!

One of the beneficial outcomes of the Khorana and Bose internships for Scholars is the potential of having their research included in a lab publication. In the past two months, three former Khorana Bose scholars have had their work published!

Santhoshini Velusamy, who interned with Professor Guruswami's at Carnegie Mellon University, contributed to the article, "Streaming Complexity of Approximating Max 2CSP and Max Acyclic Subgraph", which has been accepted to the APPROX 2017 conference. Although, it will take about a month to be published, the website link is: <http://cui.unige.ch/tcs/random-approx/2017/index.php?id=1>

Kaivalya Molugu, a 2016 Khorana scholar, also had her parts of her internship work published this week in the journal PNAS (Proceedings of the National Academy of Sciences). The article is titled "Structural hierarchy controlling dimerization and target DNA recognition in the AHR transcriptional complex" and is work from her research done at the University of Wisconsin Madison under Professor Xing. Click the following link to view the article: <http://www.pnas.org/content/114/21/5431.full.pdf>



2015 Bose Scholar Venkatachalam Avadiappan worked under Prof. Christos Maravelias in the CBE department at UW Madison. His article is titled "Simultaneous chemical process synthesis and heat integration with unclassified hot/cold process streams," which focuses on computer and chemical engineering. Click the following link to view the article: <http://www.sciencedirect.com/science/article/pii/S0098135417300881>



WINStep is proud of every scholar who is granted a scholarship with them. If your work done during your summer in the United States with Khorana or Bose programs is published, please let us know!

EVENTS

2017 Khorana Bose Orientation Back In Madison!

The 2017 Khorana Bose Scholar Orientation was held on May 21, 2017 at the University of WI Madison. From a total of 80 Khorana and Bose Scholars, 51 were able to attend the Orientation, hosted on campus by the Assistant Dean of Engineering, Dr. Parmesh Ramanathan and the non-profit, WINStep Forward.

This year's Orientation focused on establishing connections among the Scholars, program administrators, and introducing Scholars to programs that synergize with the Khorana and Bose Programs. Representatives from multiple groups and departments on and off campus were keen to share the role their organizations could play in future Scholarly pursuits.

The program opened with the Assistant Dean of the Engineering School Dr. Parmesh Ramanathan, a staunch advocate for the Khorana and Bose programs, giving an introduction to the University as well as going into a little bit a depth on some great science discoveries made here. Parmesh was followed by the Vice Provost and Dean of Continuing Studies Dr. Jack Russell welcoming the Scholars to the U.S. and UW Madison, as well as the importance of making the most of their opportunities they are given.



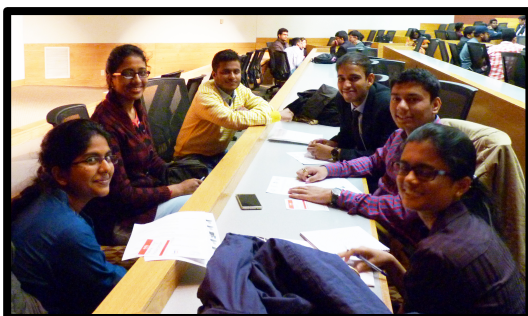
Representing the WINStep Forward management was Dr. Eric Horn, who shared some of the program's history with the Scholars and administrators present. Also, previous US Bose Scholar Daniel Howard gave a presentation about his experience in India and how it has affected his life in such a positive way.

Prasanth Kumar spoke on behalf of the Indian Graduate Student Association, highlighting the strong community bonds that are cultivated by such an organization. It was interesting to hear about events that occur during the school year as well as some that the scholars at UW-Madison would be able to participate in this summer.



Geeta Chougule traveled from Brown University to Madison to present about her university as well as gain insight into ways that institutions can provide for scholars coming through the SN Bose and Khorana programs. WINStep is excited about the US Bose program gaining traction at more universities like Brown as the word spreads about both our SN Bose and US Bose programs.

Lunch was catered by the Madison-based Indian restaurant Swagat.



EVENTS

2017 Khorana Bose Orientation Continued...



Speaking on behalf of Science and Research Opportunities in India (SciROI) was Dr. Piyush Lal. Dr. Lal is a postdoctoral Research Associate as well as one of the founding members of SciROI, a group formed as an initiative of WINStep Forward. Sci-ROI aims to empower science and industry professionals (postdocs, students and scientists) working in the USA and India through meetings such as Young Investigators Meeting, in which participants get an insider's view on employment opportunities in diverse areas of Indian academia, government and industry through engaging with peers, delegates of Indian Government/institutions, and senior leaders in Indian science and industry. Dr. Lal encouraged the Scholars to join Sci-ROI sooner rather than later to get a headstart on networking and exploring potential career opportunities.

Many Khorana Bose Scholars who perform their summer internships at UW Madison return to UW Madison to pursue their PhDs. Representing the Khorana Bose Alumni Chapter at UW Madison was Ms. Aayushi Oberoi, Aayushi Uberoi, Sanjan Gupta, Indroneil Ghosh, Harisha Rajanala and Guneet Mehta. Their presentation gave the scholars a chance to hear first-hand experience and advice from those who had completed their Khorana Bose internship already.



Dr. Sadhana Srivastava, an IT/IP expert at the Indian College of Medical Research (ICMR), encouraged the Scholars to not hesitate when it comes time to convert their technological prototypes into marketable products. Dr. Srivastava is currently interning at UW Madison for three months at the Wisconsin Alumni Research Foundation (WARF), modeling a technology transfer program for the thirty ICMR institutes.



Dr. Aseem Ansari, the Director of the Khorana and S.N. Bose Programs and a Professor of Biochemistry/Genomics at UW Madison, was the last to speak and he encouraged the Scholars to connect with one another. He emphasized that these relationships made now would not only be ones that could continue for the rest of their lives, but give them the opportunity to grow in their professional lives as well. He used the example of himself and Parmesh working together, despite having opposite fields of interest. It was a perfect end to a day full of encouragement towards community and fellowship.

The Scholars were academically engaged from 8 a.m. to 4 p.m. with talks, presentations, and group building exercises. Afterwards, they were accompanied by WINStep members on a walk to the Capitol Building, where they snapped pictures in front of the capital and then were free to make their way down State Street to choose from many of the food venues on the six block stretch of restaurants and small shops. It was heartwarming to see how fast these students who were strangers 24-hours prior came together by the end of the day in such camaraderie, one would suspect they were lifelong friends.

On Monday morning, all non-UW interning Scholars caught flights to their respective universities to embark on their Khorana Bose internships.



EVENTS

Alumni Chapters- Purdue and Boston Area

Purdue Chapter Initiated

On February 10th, 2017 some previous scholars of Purdue University from 2015 met for dinner. At this dinner, the alumni discussed how the SN Bose Program has assisted them to getting where they are now. Being thankful for their past opportunity, they were excited to think of ways they can help the incoming students with situations like housing and getting used to the work environment in the United States. This is a good start for any group of former Khorana Bose scholars who are back in the United States who want to start an Alumni Chapter at their own school. Alumni Chapters are clusters of Khorana Bose former students that are now obtaining their graduate or masters at the same university or in nearby universities. Alumni Chapters allow for the Khorana and Bose Programs to have contacts at several schools that can help incoming scholars, as well as make people more aware of these programs, including the US Bose Program. UW Madison is hoping to create an on campus student organization that is for Khorana Bose Alumni. If you are interested in starting one of these at your school, please let us know.



Right to Left: Ujash Shah, Rajath Kantharaj, Rishav Roy

Boston Area Chapter Established

Dr. Aseem Ansari, Director of the Khorana and S.N. Bose Programs, met with Khorana and Bose Alumni in the Boston area in March 2017.

Many of them were completing their PhDs or starting their post-docs and everyone had a good time reminiscing about their Khorana Bose experiences. Even though soon they will be embarking on their careers, many of them were enthusiastic about beginning Khorana Bose Alumni Chapters at Harvard, MIT, Cornell, and other East Coast schools, and were happy to stay in touch with each other as well with incoming Scholars.



The Alumni who attended the lunch:

Shalini Gupta, Sarita Koride, Arkopal Dutt, Harith, Kalki Kukreja, Eeshit Dhaval Vaishnav, Vivek Kumar Dwivedi, Abhinav Gupta, Chetan Srinath, Abdul Majeed, Priya S, Chinmay Shukla, Deepshikha Dogra

EVENTS**Sci-ROI Updates!****Interactive meeting with Prof. S. Ramaswamy**

Sci-ROI organized an interactive meeting of students and postdocs on June 8th at the University of Wisconsin - Madison with Professor S. Ramaswamy. Professor Ramaswamy is a distinguished faculty at the Institute for Stem Cell Biology and Regenerative Medicine, National Center for Biological Sciences, Bangalore, India. He presented



his research "In vivo crystals from cockroaches and what makes the walleye blue" and answered many questions on research, funding and entrepreneurial environment as well as science policies in India.

Connecting Indian Institute of Technology, Kharagpur with Indian talent pool in the USA

In an effort to connect Sci-ROI members to Indian institutions, Sci-ROI partnered with a team of delegates from IIT - Kharagpur, who is visiting USA in search of prospective faculty candidates. Team comprises of Prof S Tripathy, Dean, Faculty, Prof S Mukhopadhyay, Dean, Alumni Affairs & International Relations (AA&IR), and

Prof B Bhattacharya, Associate Dean, AA&IR. They are visiting six different places across USA. Sci-ROI is assisting them in reaching out to prospective faculty candidates across the USA. Sci-ROI (Madison branch) will host them at the University of Wisconsin - Madison on July 8th, however Sci-ROI facilitated members to attend meeting at any of the places mentioned below on respective dates.

Date and Venue:

June 30 (Fri) San Francisco

July 4 (Tue) Houston

July 5 (Wed) Washington DC (5 pm to 7 pm, 11112 Tara Road, Potomac, MD 20854)

July 6 (Thu) Johns Hopkins University (8.30 am to 9.30 am, Jarrett Room of Hopkins Club, Hopkins Homewood Campus)

July 7 (Fri) Purdue University

July 8 (Sat) University of Wisconsin - Madison (11.30am to 2.00pm, 440 Henry Mall, Rm 1211, H.F.D. Biochemical Sciences)

Upcoming event: Sci-ROI annual meeting, YIM-C 2017: Registration will start soon for annual meeting of [Sci-ROI](#).

How You Can Contribute!

There are many things you can do to participate and help grow the Khorana and Bose programs!

You can volunteer your time and ideas to some of the programs/initiatives that are being developed. Simply contact info@winstepforward.org and let us know how you would like to contribute or participate. Below are items that might be of interest:

- Encourage talented US students to apply for internships in India, Host/mentor Indian scholars at your institution, Engage your institution in the Khorana and Bose Programs, Build outreach and volunteer base, Link Indian and US students to other opportunities, Launch new initiatives, Social media coordination, website content management, and host events, Design materials such as flyers, logos, etc.

Other Options:

Become a U.S. or India Regional Volunteer/Coordinator

We are looking for volunteers who would like to help coordinate various programs and initiatives at their institutions and their communities both in the US and India.

Identify Corporate Sponsors/ Donate to a Fund

WINStep Forward operates off a very limited budget. It is due to budget constraints that we could not host our Khorana Bose Orientation event in 2016. If you are aware of a company that might be interested in being a corporate sponsor please contact us! If you are able, please consider donating to a fund! This will help us offer as much as possible in terms of events and activities and resource offering to current scholars as well as alumni. Below are some funds to which you could donate.

Orientation Event Fund

This fund is to help sponsor the annual Orientation we hold for U.S. and Indian Scholars before they begin their internships abroad. The annual Orientation is held in Chicago, Illinois, and your donation, or sponsorship would help to improve services and eliminate logistical challenges to hosting the event.

Scholarship Fund

The donations to this fund would be used to help sponsor U.S. or Indian students who have been selected as finalists for the Khorana/Bose Programs, but due to limited funding, are not accepted into the program. In the past, we have placed a few "honorary" scholars with successful outcomes. With your donation, we would be able to pay for uncovered costs such as Housing/travel/stipend and include these talented students in the program.

Alumni Fund

We are creating Alumni Chapters across the United States and India. We will be offering our Alumni a highly informative Alumni newsletter, which will allow Alumni to connect with other Scholars as well as industrialists, tech innovators, NGOs, government agencies, etc. We will also be providing alumni with recorded science and technology related webinars and inviting Alumni at discounted rates to our annual and semiannual events!

Programs Fund

We offer a wide range of highly effective and life-enhancing programs (eg. Sci-ROI, Rural Development, Fellowship Programs). Your donation to these programs will help ensure their outstanding quality and longevity. A donation will make you a WinStep Forward member.

PROGRAM CONTACT INFORMATION

For more information on the prestigious Khorana and S.N. Bose Scholar Program, please email us at info@winstepforward.org or visit WINStep Forward at: www.winstepforward.org



YOUNG INVESTIGATORS MEETING CHICAGO

Sept. 8-10, 2017

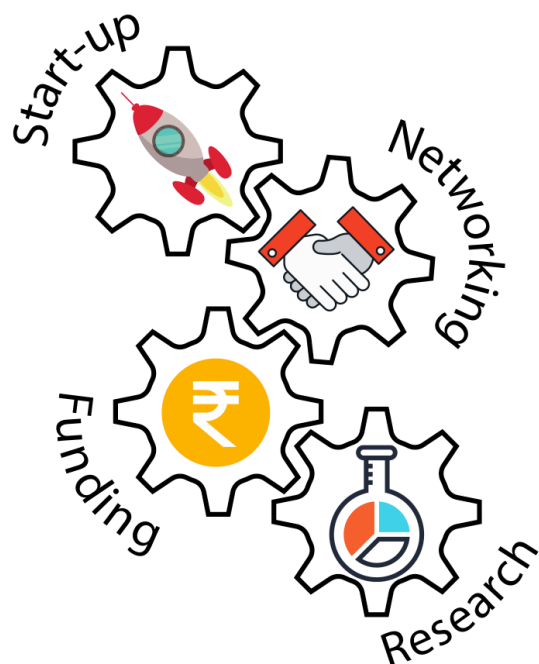
Explore Opportunities in India and USA

Venue **September 8-10:** University of Chicago
September 11: University of Wisconsin-Madison, & University of Illinois- Urbana Champaign

Registration opens soon
www.sciroi.org



Limited seats only!



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