

PERSONAL NEWS

production and education activities thoughtfully, so that neither of them suffered. As the first chairperson of the Outreach Committee of ASI, she effectively spread astronomy education all over the country. The most recent adventure was associating Mahatma Gandhi with astronomy. The exhibition 'Bapu Khagol Mela' together with daytime activities for school children and night sky watch, went round the country and all those who hosted this event, remember her untiring devotion and enthusiasm. Last year, during the pandemic she switched over to the on-line mode and made an effort to get students to measure the angle between Jupiter and Saturn day after day during the rare event of conjunction in December. She named the naked-eye observations programme as 'The Chandrashekhara Samanta Challenge' and collected observations from all over the country.

Rathnasree served in several science popularization committees. She created groups for on-line discussions on a specific topic to help the planetarians of India.

To what extent she was a victim of gender bias will not be known because her hardships of carrying out research with a young baby were brought to light by others only after her death. As one of us (J.R.) recalls, Rathnasree accomplished so much and was single parenting in a new and unfamiliar environment at UVM. She would come to the office each day after she took her son to school and left office to pick him up after school, often by mid-afternoon. Her time at UVM under these conditions reflects a remarkable resilience and determination. She balanced her activities between home and work. Bhimarao Nan-

divada, Patrick Das Gupta and Ujwal Das Gupta perhaps felt enriched by her passion for work. She did not regret at any stage for having diverted from research to outreach and popularization activities, missing an opportunity to be listed among those in forefront research careers.

Rathnasree's interest in the history of astronomy is a lesser known aspect. Perhaps it was kindled by Nirupama Raghavan who studied the iconography of Nataraja for a match with Orion constellation. After the demise of Raghavan, Rathnasree carried it forward to identify the fire in the hand of the idol as the probable depiction of the 1054 supernova.

One of us (B.S.S.) worked with Rathnasree to understand the manuscript of Kamalakara Bhatta to check if he had known about events like transit. We found specific mention of a 'hole'-like appearance for Venus transit and a 'dot' for the Mercury transit in a text, which provided detailed procedure for calculation of the timings.

A workshop was held to understand astrolabes, after which Rathnasree came up with an unusual idea – to use the planetarium projector as the real sky for verifying the accuracy of the star dials of the astrolabes. It sounded impractical to me since I was aware of the problems associated in working with images for the full-dome screening. Rathnasree wanted an astrolabe to start with and it was difficult to procure from any museum. She used the one I had made for Bengaluru latitude and effectively projected it onto the dome to verify the accuracy of my markings of star positions. The success led her to work with images of old star dials from other places and from the catalogue S. R. Sarma. One of her

dreams was to depict the episode of an astronomer making an astrolabe and marking the supernova on it (just as B.S.S. had shown in the 1604 astrolabe) in a planetarium show.

Always looking for something new, Rathnasree came across the name of Badshah Begum of the 18th century, who was probably the first woman astronomer from India on the records. Rathnasree mentioned it in one of her on-line talks from Kolkata last year and was finalizing the paper for publication. Another of her passions was bringing day-to-day research to the common man, which again was considered as an impossible task with regard to planetariums. Rathnasree wanted to show the planetarium sky in different wavelengths with the help of survey images. She also wanted to show the 'radio' sky, and the distribution of pulsars and X-ray sources... but these remain undone.

To cope up with the loss of communication during the pandemic, Rathnasree created a WhatsApp group for all the planetarians of India, juniors included. She wrote there on 19 February 2021 in the context of in-house show productions in planetariums, '...I will retire by November...I too want to put up a last show – a Swan song as it were.'

JOANNA RANKIN^{1,*}
B. S. SHYLAJA^{2,*}

¹*Department of Physics,
University of Vermont,
Burlington, VT 05405, USA*

²*Jawaharlal Nehru Planetarium,
Bengaluru 560 001, India*

**e-mail: Joanna.Rankin@uvm.edu;
shylaja.jnp@gmail.com*

Rinti Banerjee (1972–2021)

Professor Rinti Banerjee (Department of Biosciences and Bioengineering, IIT Bombay) passed away on 8 July 2021, due to post-COVID-19 complications. In losing her the Indian and international scientific community has been robbed most untimely of a stellar scientist and researcher (she was just 49), a well-loved teacher, an accomplished S&T administrator and an affable persona.

Following her MBBS from BJ Medical College Pune in the early 1990s, Banerjee did a Ph.D. in *Biomedical Engineering*



from IIT Bombay and a postdoctoral stint at the University of California, San Francisco, USA, before returning to IIT Bombay to take up a faculty position in the Department of Biosciences and Bioengineering.

Banerjee's medical training inspired her to undertake translational research right from the start, when the term 'translational' was only just being heard in the scientific circles, and she retained that orientation strongly throughout her career. Banerjee wanted her work to ultimately result in

enhanced accessibility, affordability and equality in healthcare and other domains. She worked in the broad domain of nanomedicine, and specialized, among other niche areas, in nanostructured biomaterials, nanotechnology platforms for drug delivery and therapeutics and pulmonary surfactants. There can be no better illustration of her commitment to applied research than that over the past year and a half, she was orchestrating several research projects on COVID-19, and had filed for multiple patents. One of the products that Banerjee and her team came up with was a biodegradable, wash-resistant coating for textiles for environment-friendly masks and PPEs – the ‘Duraprot’ technology, which has been incorporated in ‘self-disinfecting’ masks that have been already commercialized, and which is awaiting patents. Other products developed and transferred to the industry include the alcohol-free Ecorsani sanitization technology; Picovrid, the spice-based nutraceutical, and Nanosurf pulmonary surfactant to reduce cytokine storms. It is a distressing irony of fate that Banerjee died due to the very disease she was so intensely involved in combating during the last year and more.

Banerjee has won worldwide recognition and numerous accolades for her research. Among the prestigious awards bestowed on her are the National Woman Bioscientist Award, the Indo-American Frontiers of Engineering Award, the CDRI Award for Excellence in Drug Research and the NASI-Reliance Industries Platinum

Jubilee Award for Biological Sciences. She was also on the editorial boards of several flagship international journals, and served on diverse national and international advisory committees and task forces, her expertise and visionary thinking being much appreciated and sought after.

A truly remarkable facet of Banerjee’s work was the rapidity with which she did it. She completed her Ph.D. in just around three years; in this short period of time she produced a voluminous thesis extraordinary for its scholarship and the amount of research that went into it. Likewise, after she joined as faculty at IIT Bombay, Banerjee was promoted to the posts of Associate Professor and Professor in the shortest possible time. At a very young age she had garnered multiple accolades, including awards, distinctions and editorships. She was elected as Fellow of the Indian Academy of Sciences (Bengaluru) and National Academy of Sciences India. In 2015, she was also elected to the Madhuri Sinha Chair Professorship at the Department of BSBE, IIT Bombay, which she continued holding till her demise.

Banerjee was a well-loved teacher as well, and her students remember with much fondness her impeccably organized lectures, lucidity of expression and approachability. Testament to her teaching skills was the Best Teacher (Department) Award conferred upon her in 2019.

One of Banerjee’s most striking attributes was her calmness and equipoise at all times. No matter how ruffled she felt

about things, or how irked, she would never let it show. At a memorial service meeting held in her honour, several associates, colleagues and students remarked on how this feature of her demeanour helped them calm down as well during moments of stress or unsettledness. It also stood her in excellent stead when she served as Head of Department between 2016 and 2019. Banerjee’s composed presence and warm smile will be as sorely missed as her research acumen and innovative technology development.

Banerjee developed COVID symptoms in the fourth week of May 2021 and was hospitalized. She was found to have severe infection in her lungs and was shifted to the ICU on 27 May 2021 and put on a non-invasive ventilator. By late June, She was declared coronavirus-free, was off the ventilator and was on the path to a gradual but steady recovery. We were all looking forward to seeing her back at work soon in the department. On 8 July 2021, she had a cardiac arrest and departed this world.

Banerjee is survived by her husband, Dr Bhagwati Prasad, whom she met at IIT Bombay while both of them were doing their Ph.D. and a son.

ROHIT MANCHANDA

*Department of Biosciences and
Bioengineering,
IIT Bombay,
Mumbai 400 076, India
e-mail: manch@iitb.ac.in*