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Late B.P. Poddar
(1920-1981)
Founder
B.P. Poddar Group

Remembering Subrahmanyan Chandrasekhar



Subrahmanyan Chandrasekhar, was born on 19th of October 1910 to Sitalakshmi and Chandrasekhara Subrahmanya in Lahore (then a part of British India). He was an Indian American astrophysicist who was awarded the Nobel Prize for Physics in 1983 with William A. Fowler "for his theoretical studies of the physical processes of importance to the structure and evolution of the stars". His mathematical treatment of stellar evolution yielded many of the best current theoretical models of the later evolutionary stages of massive star and black holes. The Chandrasekhar limit is named after him.

Chandrasekhar worked on a wide variety of astrophysical problems in his lifetime, contributing to the contemporary understanding of stellar structure, white dwarves, stellar dynamics, radiative transfer, the quantum theory of the hydrogen anion, hydrodynamic and hydromagnetic stability, equilibrium and the stability of ellipsoidal figures of equilibrium, general relativity, mathematical theory of black holes and theory of colliding gravitational waves. At the University of Cambridge, he developed a theoretical model explaining the structure of white dwarf stars that took into account the relativistic variation of mass with the velocities of electrons that comprise their degenerate matter. He showed that the mass of a white dwarf could not exceed 1.44 times that of the sun, which has been named after him as the Chandrasekhar limit. Chandrasekhar revised the models of stellar dynamics first outlined by Jan Oort and others by considering the effects of fluctuating gravitational fields within the Milky Way on stars rotating about the galactic centre. His solution to this complex dynamical problem involved a set of twenty partial differential equations; describing a new quantity he termed 'dynamical friction', which has the dual effects of decelerating the star and helping to stabilize clusters of stars.

Chandrasekhar studied at Presidency College, Madras (now Chennai) and University of Cambridge. He spent most of his career at the University of Chicago, spending some time in its Yerkes Observatory, and served as editor of *The Astrophysical Journal* from 1952 to 1971. Chandrasekhar was recruited to the University of Chicago faculty as Assistant Professor by Dr. Otto Struve and President Robert Maynard Hutchins in January 1937. He served as faculty at the University of Chicago from 1937 until his death in 1995 at the age of 84.

Chandrasekhar married Lalitha Doraiswamy in September 1936. Chandrasekhar was the nephew of Sir Chandrasekhara Venkata Raman, who was awarded the Nobel Prize for Physics in 1930.

Chandra worked closely with his students and expressed pride in the fact that over a 50-year period (from roughly 1930 to 1980), the average age of his co-author collaborators had remained the same, at around 30. He insisted that students address him as "Chandrasekhar" until they received their Ph.D. degree, after which time they (as other colleagues) were encouraged to address him as "Chandra". Subrahmanyan Chandrasekhar died on August 21, 1995.

ACADEMIC NEWS:

Publications:

Journals:

Tapas Bandopadhyay, B. Bandopadhyay, **B. N. Chatterji**, "Security of images through secret coding in bit plane watermarking and encryption", *Wulfenia Journal*, **22**(9), pp. 214-222, September 2015, Impact factor: 0.267 (SCI indexed).

Anindita Ray, Debashis De, "An energy efficient sensor movement approach using multi-parameter reverse glowworm swarm optimization algorithm in mobile wireless sensor network", *Simulation Modeling Practice and Theory*, Elsevier, **62**, pp.117-136, March 2016, ISSN: 1569-190X, Impact Factor: 1.38.

Journals (Online):

Subhrajit Mondal, Tania Khatun Mollah, Arindam Samanta, **Soumya Paul**, "A survey on network security using Genetic Algorithm", *International Journal of Innovative Research in Science, Engineering and Technology*, **5**(1), pp. 87-93, January 2016, ISSN (Online)-2319-8753, Impact Factor 5.442.

Arijit Dey, "Neural network modeling for simulation of error optimized QCA adder circuit", *International Research Journal of Engineering and Technology (IRJET)*, **3**(2), pp. 1003-1007, February 2016, e-ISSN: 2395-0056, p-ISSN: 2395-0072, Impact Factor: 4.45

Arijit Dey, Kunal Das, Debashis De, Mallika De, Sanjoy Das, "Fan-out constraints in quantum dot cellular automata circuit design", *Nanomaterials and Energy*, **5**(1), pp. 43-52, March 2016, ISSN 2045-9831, e-ISSN 2045-984X (without Impact factor).

Conferences:

Tapas Bandopadhyay, B. Bandopadhyay, **B. N. Chatterji**, "Defense in depth of images in the public domain through time sampling, watermarking and encryption", 3rd International conference for sustainable global development, 16-18 March 2016, New Delhi, Proc. 10th INDIACon-2016, IEEE Conference ID:37465, pp. 827-832.

T. Banerjee, J. N. Bera, S. Chowdhuri, G. Sarkar, "A comparative study between different modulation techniques used in field oriented control induction motor drive", Proc. 2nd International Conference on Control, Instrumentation, Energy & Communication



(CIEC), IEEE Xplore Compliant ISBN No.: 978-1-5090-0035-7/IEEE Xplore Compliant Part No.: CFP1697V-ART, 28-30 January 2016, pp. 121-125.

Sudipta Chakraborty, Suwendu Chattaraj, Abhik Mukherjee, "Particle filter based estimation of navigation information during in-flight post ejection", Proc. 2nd International Conference on Control, Instrumentation, Energy & Communication (CIEC), IEEE Xplore, ISBN No.: 978-1-5090-0035-7/ IEEE Xplore Compliant Part No.: CFP1697V-ART, 28-30 January 2016, Doi: 10.1109/CIEC.2016.7513784.



Gitosree Khan, Sabnam Sengupta, Anirban Sarkar, Narayan C Debnath, "XML based service registration system for enterprise cloud bus", Proc. IEEE International Conference on Communications, Management and Telecommunications (ComManTel), 28-30 Dec. 2015, Vietnam, pp. 250-255 (IEEE Xplore).

Gitosree Khan, Sabnam Sengupta, Anirban Sarkar, Narayan C Debnath, "Performance analysis of service discovery for Enterprise Cloud Bus (ECB)", Proc. IEEE International Conference on Industrial Technology, Taipei, Taiwan, 14th -17th March 2016, pp.1728-1735.

Gitosree Khan, Sabnam Sengupta, Anirban Sarkar, "Priority based service scheduling in Enterprise Cloud Bus architecture", Proc. 3rd International Conference on Foundations & Frontiers in Computer, Communication and Electrical Engineering – 2016 (C2E2 – 2016), ISBN: 9781138028777, 15th-16th January 2016, Mankundu, West Bengal, pp.363-367 (CRC Press).

Esa Bose, Sudipta Pal, "Magnetic property modulation by doping La in the Dy site of polycrystalline DyMn2O5", Abs. National Conference on Emerging Trends In Condensed Matter Physics & Materials Science (Etcmpms-2016), March 2016, pp. 7.

P. K. Ghosh, **R. Goswami**, D. Das, JBM Krishna, S. Chatterjee, P. V. Rajesh, "Semiconducting properties of Graphite-Clay Composite at extreme temperatures", Proc. National Thematic Workshop on Recent Advances in Materials Sciences, 8th March 2016.

INSTITUTIONAL NEWS:

Paper presentation in workshop

Bikromadittya Mondal, Kushal Dey, Paramita Roy, Susanta Chakraborty, "A novel design of reversible cryptographic circuit", Proc. 7th IEEE International Workshop on Reliability Aware System Design and Test (RASDAT), 7-8 January 2016, Kolkata, India.

Chandan Das, **Sarit Chakraborty**, Susanta Chakraborty, "A novel mixing technique for low cost sample preparation in digital microfluidic biochip", Proc. 7th IEEE International Workshop on Reliability Aware System Design and Test (RASDAT), 7-8 January 2016, Kolkata, India.

Students Conference Presentation

Abhishek P. Chowdhuri, Avirup Roy, Mayukh Sinha, Anurag Chaudhuri, "Vehicle monitoring system using RF transmission incorporating FSK technique"(Paper number-9803-156), SPIE Smart Structures and NDE, 2016, Las Vegas, USA.

Avirup Roy, Abhishek P.Chowdhuri, Mayukh Sinha, Anurag Chowdhuri "Emergency response system using opto-electronic impact sensors and MEMS"(Paper number-9803-158), SPIE Smart Structures and NDE, 2016, Las Vegas, USA.

