



Brief Lifesketch of Professor Arun Kumar Basak

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Arun Kumar Basak was born on October 17, 1941 in Pabna. His father was Haripada Basak and mother Usharani Basak. He spent his childhood and youth in Pabna. He showed extraordinary talent from his childhood, once receiving double promotion in primary school.

In 1957, Arun Basak passed the matriculation examination held under the then East Pakistan Secondary Education Board from R.M. Academy in Pabna in the first division. In 1959, he secured second place in the combined merit list in the Intermediate examination held under the University of Rajshahi from Edward College, Pabna. He was awarded the SEATO Scholarship for securing the highest marks including the additional subject.

At that time, the undergraduate physics program had not yet started at the University of Rajshahi (RU). So Arun enrolled in Rajshahi Government College in the B.Sc.(Hons.) in Physics program and secured First position in First Class in the B.Sc.(Hons.) examination held under RU in 1961 with the highest marks in the Faculty of Science (which comprised all the science subjects at that time). For this, he received the University of Rajshahi Merit Scholarship. Then he came to study in the Physics Department, RU and secured First place in the First Class in the M.Sc. examination held in 1963, again with the highest marks in the faculty. He was awarded the University of Rajshahi Gold Medal for achieving 75% marks and received the Merit Scholarship for achieving the highest marks in the Faculty of Science.

Professor Ahmad Husain, the Founding Head of the Department of Physics, RU, sought permission from Arun's father to appoint him as a teacher in the Physics Department well before the commencement of his M.Sc. Examination. He was confident about Arun's performance in the exam. Professor Husain sent Arun to the classroom even before the results of his M.Sc examinations. Arun Basak formally joined the Department in December 1963 and was promoted to the rank of Assistant Professor in 1964.

Professor Ahmad Husain went to the Peking Symposium in 1964 and Arun Basak wrote the article for presentation. When Professor Husain presented the research work, the presentation was praised by the world-renowned physicist Professor Shoichi Sakata and the news was published in the *Science Chronicle* and several Pakistani newspapers, as headlines.

In 1965, his passport was confiscated before he could board a plane to London for higher studies at Imperial College, University of London, on a government merit scholarship. Until the independence of Bangladesh, despite being selected for scholarships repeatedly, his passport was not returned. So his opportunity to travel abroad for higher education was delayed by seven years.

During this period, Arun Basak devoted himself to serving the Department of Physics, RU in all dimensions, including improvement in quality of laboratory (practical) teaching and research. This devotion led to the publication of their work in the eminent journal *Lettere al Nuovo Cimento* in 1972. This was the first research article in the combined Science Faculty of RU in a renowned foreign journal.

Only in 1972, a year after Bangladesh finally gained independence, Arun Basak went to UK, with a Bangladeshi passport and a Commonwealth Scholarship, to do research in Experimental Nuclear Physics in the Low Energy Nuclear Physics Group of the Department of Physics, University of Birmingham.

Back in the country when Abdus Salam Mondal, later Professor in the same department, submitted his Ph.D. dissertation in 1973, and was awarded his Ph.D. in 1974, it was the first doctoral dissertation in the combined Science Faculty of the University of Rajshahi. In fact it was probably the first Ph.D. degree of RU. This work was largely based on work done in close collaboration with Arun Basak before he left for his doctoral studies in UK. The dissertation of Abdus Salam Mondal was sent for external examination to Dr. D.H. Davis of University College London (University of London), an eminent British experimental nuclear physicist known for his pioneering research on hypernuclei and strange particles. Another paper based on this work was published in *Nuovo Cimento A*, which was, at that time, a leading journal for nuclear and particle physics.

Meanwhile, in UK, Arun Basak worked at the accelerator at Birmingham with the tensor polarized deuteron beam and the world's only polarized ^3He (3-Helium) beam. He received his Ph.D. degree in 1975 on the results of polarization effects in (d,p) reactions under the supervision of Dr. J.A.R. Griffith and Dr. S. Roman. He was known for his hard work and at one stage worked continuously for 56 hours in the lab to get some crucially important results.

His Ph.D. external examiner was Professor Ron Johnson, who was a globally renowned expert, also known for his harsh criticism. The fact that the Head of the Department Professor William Burcham, Professor George Morrison and others invited him, is evidence in itself to the confidence they had in the then young Arun Basak; and he did not let them down. Even very recently, Professor Kirby Kemper of Florida State University wrote to me, "Please give my best to Professor Basak whose work I have followed since his student days."

On the basis of the quality of his Ph.D. thesis, his performance in his Ph.D. defence and other hard work, as well as seminal publications with the polarized ^3He (3-Helium) beam, Dr. Basak was appointed in a tenured faculty position as a Research Fellow (in UK, Research Fellow and Lecturer are equivalent) just after his Ph.D. The post was advertised earlier and the dates were set such that he could apply and attend the interview immediately after his Ph.D. His research work there was highly praised and was published in leading journals including *Physical Review Letters*. Although he was offered appointment as a Research Fellow with tenure, with a vow to serve the country, he agreed to stay there for only one year and returned to the country after that to serve the newly independent Bangladesh. His teachers and colleagues were surprised with his decision.

It is also interesting to note that Arun Basak never had to apply for a job without being invited for it. I have written above how he was asked by Prof Ahmad Husain to go to the classroom even before his Masters results. Similarly, in Birmingham when he was asked to apply for the Research Fellow position, he was still not aware that it had been advertised earlier.

In 1978, he was promoted to the rank of Associate Professor in the University of Rajshahi. In 1979 he was again invited by the University of Birmingham as a Visiting Research Fellow. He started to work using the polarized ^3He -beam. He was using a great deal of computation. At that time there was no monitor available there to see the results of the computation. So he had to get output of the computed results through printing. At one stage, Professor George Morrison asked Arun what he did with so much computer printouts. In an uncharacteristically strong retort, Arun Basak said, “Do you think I eat those papers?” After this exchange, a computer monitor (then newly available in the market) was procured for Arun Basak.

In 1981, Dr. Basak before leaving for the United States, delivered a seminar talk on the basis of what he did in the period 1979-1981. It was attended by all including Professor Burcham, who had retired as Head of the Department three years back. It was an impressive talk. At one stage, Professor Burcham commented, “Who will continue with this type of work?” Arun Basak politely replied, “Whoever would be appointed in my place.” Professor Burcham expressed openly, “I doubt it!” Professor Burcham blessed Arun highly before departing.

After the talk, Professor Morrison came to Arun to apologize for his previous comments and complaints about the excessive use of paper. Arun replied, “You don’t have to apologize. I am rather ashamed to hurl harsh words against you.” Professor Morrison assured Arun saying, “You deserved saying that.”

Arun Basak then moved on to Ohio State University (OSU), USA as a Postdoctoral Research Fellow for one year, 1981-1982. After returning home in 1982, he stayed in the country except for short visits abroad. In 1984, he was promoted to the rank of Professor. After his retirement he was appointed as Professor Emeritus by the University of Rajshahi in 2009, a position in which he is still serving. In 1986-1989, he founded the Rajshahi University Computer Center and played a role as one of the pioneers in the use of computers in this region during that era. In fact, in certain aspects, RU surged ahead even of DU and other

Dhaka institutions in that period in terms of computational research, and the use of computers in result processing and accounts of the university.

Even after that, despite invitations and opportunities at various times, he did not leave the country. However, he travelled abroad several times to work as Associate/Visiting Scholar/Research Professor etc. at the International Centre for Theoretical Physics (ICTP), Trieste, Italy, Kent State University and Southern Illinois University at Carbondale in USA.

In 1990, Professor Sadruddin Ahmed Chowdhury, the first Vice-Chancellor of Shahjalal University of Science and Technology (SUST), Sylhet persuaded Professor Basak to join as the first teacher at SUST. There, at SUST, he served as the founding Dean of the School of Physical Sciences, the founding Chairman of the Department of Physics, and the founding Director of the Computer Center. Through hard work, discipline and the appointment of qualified people regardless of party affiliation, Professor Arun Basak played a key role in building the foundation of today's reputation of SUST.

He co-authored a book on Practical Physics for undergraduate students with Professor Sadruddin Ahmed Chowdhury. Another one has recently come out with co-authorship contributions from Professor M. Obaidul Hakim, Dr. M. Rezaul Rahim and Pradip Kumar Mohanta.

Despite his dedicated teaching and important role in academic administration, what made Professor Basak unique was his dedication and fundamental contribution to research. At a time when world-class research was extremely difficult and rare in Bangladesh, he uncompromisingly set himself the goal of producing work worthy of publication in the world's leading journals. These journals include: *Physical Review Letters*, *Physics Letters A* and *B*, *Physical Review A* and *C*, *Nuclear Physics A*, *Journal of Physics B* and *G*, *European Physical Journal A* and *D*, *Physics Letters A* and *B*, *Europhysics Letters (EPL)*, *Vacuum (Elsevier)*, *Lettere Nuovo Cimento*, *Nuovo Cimento*, *Fizika*, *International Journal of Mass Spectrometry*, *International Journal of Quantum Chemistry*, *Physica Scripta*, *Radiation Physics and Chemistry*, *Canadian Journal of Physics*, *Advances in Quantum Chemistry*, *Molecular Physics*, *Journal of Physics Communication (IOP)* etc.

Once when visiting the Southern Illinois University Carbondale (SIUC) with his then Ph.D. Fellow Susanta K. Das, who later went on to become Professor at SUST, and later Vice-Chancellor at Sylhet International University, news arrived on the same day of two papers being accepted for back-to-back publication in *Phys. Rev. C*. This created quite a festive mood in the whole department there, as such cases are not so common, even in USA.

From 1997 to 2008, under the auspices of funding from the National Science Foundation of the United States, and after that, continuing the collaboration with the distinguished scientist Professor F. Bary Malik from Southern Illinois University at Carbondale (SIUC), he conducted a series of studies on the nature of the interaction between two nuclei at short distances. Some of the earlier results were highlighted in *Journal of Physics G*. This work continues today. In the course of this work, he and his co-workers have accumulated evidence that the nucleus-nucleus potentials for light-heavy nuclei, contrary to current

understanding, have a non-monotonic nature with a short-range repulsion. These works have been published extensively in leading journals of nuclear physics such as *Physical Review C*, *Journal of Physics G*, *European Physical Journal A*, *Europhysics Letters (EPL)*, *Nuclear Physics A*, *Physics Letters B* etc. Besides addressing the nature of the nucleus-nucleus interaction, this series of works has, over the past thirty years, addressed problems in clustering, polarization, incompressibility of nuclear matter, fusion hindrance and some further aspects of interest in astrophysics.

Professor Basak supervised the Ph.D. work of Professor M. Alfaz Uddin and also co-supervised the Ph.D. of Prof. A. K. Fazlul Haque in the field of Atomic Physics. Prof. Alfaz Uddin and Prof Fazlul Haque are the key persons now in conducting research the field of Atomic Physics. They are producing quality research on electron impact ionization and other topics in atomic and molecular physics. These works are being published routinely in world-class journals like *Phys. Rev. A*, *Journal of Physics B*, *Advances in Quantum Chemistry*, *European Physical Journal D*, *International Journal of Mass Spectrometry*, *Physica Scripta*, *Vacuum (Elsevier)*, *Physics Letters A*, *Radiation Physics and Chemistry*, *Canadian Journal of Physics*, *Advances in Quantum Chemistry*, *Molecular Physics*, *Journal of Physics Communication (IOP)* *Molecular Physics* etc.

In the spirit of interdisciplinary and country-needs-driven research, long before today's focus on such studies, in 1995, he supervised a Ph.D. thesis on *The Influence of Climatic Factors on Rice Production*.

As mentioned above, Professor Arun Basak is best known for his extraordinary dedication to research and hard work. As long as he was in good health he would walk several kilometres from his home to university to reach around 7:30 am and return by the last university bus at 9:00 pm. This was his routine also on weekends and holidays. On days when there would be a strike, he would sneak into the building before the picketers would arrive. Only on the two Eid days when the guards would be on leave, and the buildings fully locked, he would not be able to come to university.

Even at his advanced age, his dedication and work does not stop. Since turning 84, two papers by him and his collaborators have been published in top nuclear physics journals *Journal of Physics G* and *Physical Review C*. And he is working on the next ones.

Another indication of the quality of his research is that the thesis of Nure Alam Abdullah (now Professor at Jagannath University), who received his Ph.D. degree under him in 2006, was sent for examination to Professor George Morrison, a world-renowned nuclear scientist at the University of Birmingham. Professor Morrison recommended this thesis for *Ph.D. cum laude* (Ph.D. with honours). It is worth noting that, in some countries, if someone has done exceptionally good work, he is awarded *Ph.D. cum laude*, and this is quite rare.

It was mentioned earlier that, in 1973, the Ph.D. thesis of Abdus Salam Mondal was sent to Dr. D.H. Davis of UCL in UK for external examination. Here, 33 years later, in 2006 we see another scientist of world-renown Professor Morrison examining the Ph.D. thesis of Nure Alam Abdullah.

Now, when we most often see personally-acquainted people from little-known universities across the border selected as external examiners for Ph.D.s, we find dissertations from the Nuclear Research Lab, RU being sent to leading names of the world for examination. This demonstrates both the integrity of the group and the quality of the work. This embodies in a nutshell what Professor Arun Basak always sought to establish – that research done here at Rajshahi should not fall short of international standards. And that is something he has maintained through his long career, where he has always prioritised quality over quantity.

In 2006 Professor Arun Basak received the Bangladesh Academy of Sciences Gold Medal 2003 (Physical Sciences - Senior Category) for his fundamental contributions to nuclear physics research. He was an Associate of ICTP from 1987 to 1996. He is a Fellow of the Bangladesh Academy of Sciences, a Fellow of the Institute of Physics, and a member of the American Physical Society.

His contribution to building research and education infrastructure as well as his teaching and mentoring is also far-reaching. His influence is evident from the fact that one of his students initiated the Professor Basak Award and Scholarship named after him. A prototype High Performance Computing Cluster established at University of Rajshahi was named Arun after him.

Among the recognitions he has received, one may mention

- Bangladesh Academy of Sciences Gold Medal 2003 (Awarded 2006) in Physical Sciences (Senior Group)
- Razzaq-Shamsun Lifetime Achievement Award 2016 (Awarded 2017)
- Distinguished Personality recognized on the occasion of the Silver Jubilee of the leading national daily The Daily Star in 2016
- The Rotary Club Rajshahi Metropolitan Vocational Award 2017
- *Kirtiman Padak* from Rajshahi Chamber of Commerce and Industry for outstanding Research Contributions 2022
- *Gitanjali Sommanana Padak* 2022 from Gitanjali Academy of Fine Arts, Bangladesh for contributions as an outstanding Educationist
- Noble Teacher Honors Award 2021 from Ethics Club Bangladesh 2023
- *Banglar Bagh Padak* 2025 from Sher-e-Bangla AK Fazlul Haque Foundation, Bangladesh for outstanding contribution to Education and Research
- *Education Personality Award* 2026 from Jahangirnagar Theatre

Lately, apart from several departments, centres, institutes and halls of the University of Rajshahi, he has been invited as keynote speaker from around the country to address important occasions at the Bangladesh Academy of Sciences, Bangla Academy, Ministry of Science and Technology, University of Dhaka, Shahjalal University of Science and Technology, Jagannath University, Khulna University, Jatiya Kabi Kazi Nazrul Islam University, Barisal University and many more. Several of his articles on education and research have been published in newspapers. A collection of many of these, and more writings, has been published as a book titled *Vishwavidyalaya Shikkha Manobota* (University, Education and Humanity).

It is said that behind every successful man, there is a great woman. In the case of Professor Basak, she is his wife, Mrs. Devika Basak. While Professor Basak worked day and night in his research lab, she managed his home with immense patience. Not only that, all of Professor Basak's colleagues and students received the love and hospitality of Mrs. Basak as well. Her demise in 2019 has certainly left a significant void in his life.

Though Professor Basak seems to be working all the time, it is not that his only skills lie in Physics research. His favorite hobby outside his studies is gardening. In 1978-79, he won the Champion's Prize in the Kitchen Garden Competition organized by the Horticulture Development Board. He is held highly by many for his homeopathy, carpentry, cooking, fishing skills, etc. He does many things with his own hands, including electrical work, cleaning, etc. Even though he no longer rides a bicycle after an accident, his cycling is still a talk of the campus. Above all, his friendliness, affection, and hospitality are well known. He entertains not only his most honoured guests, but also the students of his lab and beyond, the building's guards and cleaners, even the cats, birds, and foxes with his own hands. He is known for affectionately breaking down large fish bones with cutting pliers before feeding them to the cats of the building.

Another marked aspect of him is his openness in terms of religion and belief, or even non-belief. He would take care of the needs of those who need to pray, or fast, with utmost care. Muslim guests would feel comfortable staying at his house during Ramadan, as their needs for Sehri and Iftar were meticulously taken care of. Once it was quite ironical when an external guest was looking for a prayer mat at SUST and the quickest solution was to get one from Professor Basak.

All in all, Professor Arun Kumar Basak is a true leader in science and technology, education and research in the country. He dedicated his life to building the foundations of research, teaching, capacity-building and mentorship in his research group, department, university and country, and not the least, to the growth of his very dear students. This man, an incredibly hard worker, an exceptional human being and an embodiment of benevolence, is a source of inspiration for us all.