



## In Memoriam: Mahir Saleh Hussein (1944–2019)

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**Mahir Saleh Hussein**

Mahir Saleh Hussein passed away on 16 May 2019 in Sao Paulo, Brazil. He had a long and distinguished career in nuclear reaction theory, physics of exotic nuclei, accelerator physics, quantum chaos and applications to nuclei and mesoscopic systems, and Bose-Einstein condensation.

Mahir was born on 21 November 1944 in Baghdad, Iraq. He attended public schools in several districts of Baghdad and eventually entered the College of Science in the University of Baghdad (UB). He was the first graduate student of UB in 1965. In 1967 he went to the Massachusetts Institute of Technology (MIT), where he was granted a Ph.D. in Physics in 1971 under the guidance of Prof. Arthur Kerman. Immediately after he accepted a position on October 1971 at the University of Sao Paulo (USP),

where he worked for 47 years. By the end of his career he had published over 300 papers in refereed journals.

Mahir held a distinguished Tinker Visiting Professor at the University of Wisconsin–Madison in 1979–1980 and was a Smithsonian visiting professor at MIT in 1994–1995. He was a visiting scientist at the Institute of Theoretical Atomic and Molecular Physics at Harvard University and served as the scientific secretary of the DOE–NSF Nuclear Science Long Range Plan in 1995. Mahir served as the head of the Nuclear Physics Department of the Instituto de Física of the University of São Paulo from 1995 to 1999. Then he made a decision to install a superconducting solenoid system for production of radioactive ion beams at the university. He coordinated the obtainment of the first grant for the purchase of the solenoids and ancillary systems, a project that became known as RIBRAS, for Radioactive Ion Beams in Brazil. He never stopped helping his colleagues with the theoretical interpretation of results obtained with RIBRAS.

Over the last 25 years Mahir had been involved rather heavily in four major research efforts: (1) Laser Driven Accelerators, (2) Theoretical Nuclear Physics, (3) Quantum Chaos Theory and Applications, and (4) The Theory of Bose-Einstein Condensation. He developed the reaction theory for exotic (neutron- or proton-rich) nuclei, a detailed model for the excitation and decay of multiple giant resonances, and studied in detail fundamental symmetry violation in nuclei. After his retirement in 2007 and until his passing, Mahir chaired the Non-

Conventional Astrophysics group at the Advanced Studies Institute (IEA) of the USP, organizing yearly workshops on nuclear physics, Bose-Einstein condensation, quantum chaos, and cosmology.

Mahir was a J.S. Guggenheim Fellow in 1987–1988, at the University of Wisconsin–Madison. He was a Smithsonian Foundation Fellow in 1995 at MIT and worked together with Herman Feshbach, Arthur Kerman, Ernest Moniz, and with Franco Iachello (Yale) on nuclear reaction theory and the foundations of quantum mechanics. He was a Martin Gutzwiller Fellow at the Max-Planck Institute for Physics of Complex Systems in Dresden, 2007–2008, working on quantum chaos and Bose-Einstein condensation. Mahir was a member of the Brazilian Academy of Sciences and the World Academy of Sciences and was a fellow of the American Physical Society. He was proud to mention that he had always been very active in helping Iraqi scientists to get involved in exchange programs. He was doing this through his association as a member of the board of directors of the Iraqi Society for Higher Education Abroad.

He is survived by his wife Carmen, a psychology professor, and his daughter Leila, an architect. Mahir is greatly missed.

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