

PhotonIC

Dr. Birendra (Raj) Dutt PhD.

Chairman & CEO of APIC Corp. and PhotonIC Corp.

On discovery's edge....at the speed of light.

Dr. Raj Dutt is on the leading edge of the new wave of technology entrepreneurs who are key to keeping the United States in the forefront of the immensely important (both commercially and militarily) science of Photonics. His research and contributions in theoretical and experimental applied physics, fluid mechanics, image understanding, robotics and artificial intelligence have allowed him to understand the vital role that optical networks play in adding significant advantages to avionics multi-processors providing reduced weight, improved resistance to electromagnetic interference, and significant cost savings for operation and maintenance.

Dr. Dutt originally developed these technologies for military applications via his APIC Corporation. As the technology has matured it is now entering the commercial realm with almost unlimited potential for use across almost the entire electromagnetic spectrum through APIC's commercial arm – PhotonIC. "Our experience is in designing and producing cost saving, light weight components for rugged, durable advanced integrated electro-photonics components of fiber-optic local area networks for the Department of Defense," says Dr. Dutt "This innovative technology has given us a considerable lead in producing state-of-the-art photonics for a potentially huge commercial marketplace."

Dr Dutt was born into one of India's leading military families. His father Squadron Leader Samar Krishna Dutt nicknamed "Charlie" was a fighter pilot who began his career flying Spitfires for Britain's Royal Air Force in the Second World War. After India's independence from Britain at "the stroke of midnight" on August 15, 1947, Dutt senior continued his career with the Indian Air Force for many years. Although ostensibly retired he vanished while on a covert mission over Pakistan in 1974. Dr. Dutt's sister and mother continue to live in Kolkata (Calcutta), the capital of the Indian state of West Bengal and the cultural capital of India.

At the time of his father's disappearance Dr. Dutt was already well into his career path, graduating with Honors from the Indian Institute of Technology, Kharagpur, India in early 1971. Realizing that his skills and training would give him better opportunities in the United States he immigrated to Los Angeles in July 1971. There he continued his education with a Postdoctoral Fellow from the University of Southern California in 1976-1977 studying Nonlinear Physics of Solitons; this was followed by a Ph.D. in



Experimental Fluid Mechanics from the University of Southern California in 1976 (GPA 4.0/4.0) with his Thesis work undertaken at the Jet Propulsion Laboratory in Pasadena, CA. He finally earned his M.S. from Virginia Polytechnic Institute & State University. Returning to California, Dr. Dutt also served as Adjunct Professor of Medicine; University of Southern California Medical School's Institute for Genetic Medicine (IGM) and served on IGM's Board of Trustees.

With his education behind him Dr Dutt began his career as an entrepreneur by founding Research & Development Laboratories (RDL) in Los Angeles, California, emphasizing High-Technology R & D in Radar, Electro-Optics, Image Processing, Artificial Intelligence, and Data Processing. RDL opened its doors on January 15, 1984, with a staff of 16 scientists and 6 consultants, including a Nobel Laureate in Physics, Dr. Julian Schwinger. In less than four weeks the company was awarded a number of major government contracts with a backlog of approximately \$1.5 million.

In 1999, Dr. Dutt founded APIC Corporation, in Los Angeles, California with the mission of inventing pioneering technology in the embryonic photonics industry. This encompasses work in the areas of microelectronics, photonics and electronic integration. Products include Highly Integrated Photonic Circuits incorporating a variety of functional components using Silicon-on-Insulator.

In October 2002, he founded AIP, Inc., a subsidiary of APIC Corporation, based in Honolulu, Hawaii. This R&D facility is capable of prototyping methods for fabrication and processing of 200mm wafers containing SOI (Silicon-on-Insulator)-based photonic media. This AIP, Inc facility encompasses development and operation of design, modeling and testing capabilities in support of standard and/or novel processing technology for commercial prototyping of photonic integrated circuits and related devices.

Under the leadership of Dr. Dutt, APIC has continued to grow throughout the first decade of the new millennium providing technological knowhow to the U.S. military including Naval Air Systems Command (NAVAIR) for the development of Networks Enabled by Wavelength-Division Multiplexing (WDM). WDM is a technology which multiplexes a number of optical carrier signals onto a single optical fiber by using different wavelengths (colors) of laser light enabling multiplication of capacity. WDM Highly Integrated Photonics is Network Enabled WDM - known as (NEW-HIP). "We are very proud that DARPA selected APIC to advance the technology of the NEW-HIP program," says Dr. Dutt. NEW-HIP is jointly funded and managed by the Defense Advanced Research Projects Agency (DARPA) and Naval Air Systems Command (NAVAIR).

Dr. Dutt founded PhotonIC Corp in February 2007 with the goal of commercializing the technology developed under defense contracts by APIC Corporation. All intellectual property, technology and know how were licensed/transferred to PhotonIC. Dr. Dutt has been Chief Executive Officer and Chairman of the Board of Directors since the establishment of PhotonIC.

Throughout the years, Dr. Dutt has built an outstanding reputation in the Department of Defense and in the intelligence community for his ability to take on exceedingly difficult technical problems and suggest novel solutions. In the last two decades Dr. Dutt has researched and developed several significant

patents in the fields of radar, applied physics, and photonics awarded by the U.S. Patent Office. He is married with two children and lives on the west side of Los Angeles.

APIC Corporation is headquartered at 5800 Uplander Way, Culver City, CA 90230. Tel: (310) 642-7975 ext. 125 with offices in Washington D.C.; Albany, NY; Boston, MA; Palo Alto, CA; Melbourne, FL and advanced Photonics laboratory facilities in Honolulu, HI. APIC Corporation is a world leader and supplier to the US Military in the development of photonic integrated circuits (PICs) including the F-35 Joint Strike Fighter (JSF) program.