

Allen J. Amaro

Summary Bio

Mr. **A. J. Amaro** has a strong, rapid growth startup, strategic management, R&D and technical engineering background. He is a hands-on serial entrepreneur and multidiscipline visionary with thirty years of diverse experience as a senior high technology executive.

Mr. Amaro is a principal on the founding team of **SUNrgi, LLP**, a photo-voltaic ultra-concentration solar energy company providing high-efficiency, cost competitive energy solutions to global-warming fossil fuel pollution.

Mr. Amaro was Chairman and CEO of **Mechatronic Technologies, Inc.** which designed, manufactured and marketed, advanced computer integrated continuous process factory automation and training equipment sold to Motorola, Hewlett Packard, Intel, Ford Motor Company, Idec, Digital Equipment Corp. and other fortune 50 companies.

He was the founder and CEO of **Humatech Industries**, an electronics manufacturing company of biomedical/biofeedback monitoring and wireless tele-metering communications equipment, which grew to \$2.0 million in sales during the first year of operation and ultimately sold at a profit.

Mr. Amaro was the CEO of **Weblaser, Corporation** a manufacturer of a HD-TV on-demand server engines and wireless network systems. He negotiated the acquisition of \$40M in high-technology from the Japanese government, Nippon Telegraph and Telephone and ASCII Corporation.

He is also founder of several **other ventures in nano/micro thermal-cooling materials fabrication**, computer operating systems, **robotic and automation control software**, and wireless science/math education networks.

Mr. Amaro has Executive Management, R&D scientific/ industrial/ electro-mechanical/ chemical engineering background and is well versed semiconductor materials manufacture from solar-cells to IR-windows in addition to automated machine design of flexible manufacturing and continuous process controlled systems.

Prior to these ventures, **Mr. Amaro** spent fourteen years as rocket-scientist at **SRI International (Stanford Research Institute)** initially as hands-on Rocket Propellant/ Electro-Mechanical Technician, a Chemical Engineering Associate, then as Principle Investigator, Engineering Technical Program Manager where he independently and team-collaborated on many diverse advanced research and development programs in **physical science, aerospace** and high-technologies for US Government and private industry.

Mr. Amaro held **classified, secret, top-secret and nuclear Q-clearance** in work as Research Engineer/Scientist at SRI International where he created, secured

and managed many fundamental/applied research programs in the physical science and aerospace fields for the **Government, NASA, JPL, NSF, DOD, DARPA, LRL, Los Alamos, Sandia** and private industry.

Publications:

"Designer Heat Spreading Materials and Nano-Composites" Allen J. Amaro, K.R.S. Murthy, Silicon Valley. Paper presented at the Proceedings 2007 Twelfth IEEE International Symposium on Advanced Packaging Materials, Processes, Properties and Interfaces.

"Designer Heat Spreading Materials and Composites Manufacturing" Allen J. Amaro, K.R.S. Murthy, Paper Presented at the Thirty-Second International Electronics Manufacturing Technology Symposium 2007 Proceedings.

"Thermal Indices from Heat-Release-rate Calorimetry" A. J. Amaro, A.M. Kanury, A.E. Lipska Paper presented at the Fall 1974 Meeting of The Western States Section of the Combustion Institute. Stanford Research Institute.

"Constant Temperature, Large Scale Heat Release Rate Calorimeter –The Thermal Index" A. J. Amaro, Paper presented to Fifteenth Symposium (International) on Combustion. 1974

"Design, Development and Characterization of the Stanford Research Institute Large-Scale Heat-Release-Rate Calorimeter", A. J. Amaro, National Bureau of Standards, Washington, D.C.,1974

"The Effect of High Molecular Weight, High Oxygen Containing Inorganic Additives on Thermal Degradation of Cellulose and the Synthetics" A. J. Amaro, A.E. Lipska Paper Presented to Fifteenth Symposium (International) on Combustion. 1974 Fire Research Group Stanford Research Institute.

"Development and Evaluation of Practical Self-Help Fire Retardants" A. J. Amaro, A.E. Lipska, DAHC-70-0219 Defense Civil Preparedness Agency THE PENTAGON 1973

"A Study of the structure of Jet Turbulence Producing Jet Noise" A. J. Amaro, D.C. Wooten, C.E. Woolridge NASA CR-1836 July 1971, Stanford Research Institute

"Turbulent Structure in the Noise Producing Region of A Swirling Jet" A. J. Amaro, D.C. Wooten, NASA NASw-1938, presented at the Aero-Acoustic Session of the AIAA 11th Aerospace Sciences Meeting New York Jan. 1973

"The Structure of Jet Turbulence Producing Jet Noise" A. J. Amaro, C.E. Woolridge, D.C. Wooten, American Institute of Aeronautics and Astronautics AIAA 10th Aerospace Sciences Meeting, San Diego, CA Paper No. 72-158 January 17-19, 1972

“Investigation of the use of Vortex Ring IR Decoys” A. J. Amaro, R.L. Ciang,
CN00123-71-C-0767 Naval Missile Center Pt. Mugu, CA

“The Structure of Jet Turbulence Producing Jet Noise” A. J. Amaro, D.C. Wooten
NASA Lewis Research Center NASW-1938 June 1972

Representative Research Assignments and Development Programs

Designed, Developed and Installed computer integrated manufacturing pilot facilities for UAW-Ford Motor Company, Hewlett Packard, Intel Corporation, Digital Equipment, Ralston Purina, Idec Corp. and other fortune 50 companies.

-Independently designed, developed and characterized a large heat release rate calorimeter for fire thermal research and combustibility studies of architectural structures and internal materials. Developed special high-thermal conductivity materials for heat dissipation studies –NBS

-Developed the early analytical methods to characterize improved alcohol fermentation and aging fractions using GLC (gas liquid chromatography) for wine industry.

- Conducted studies in the early development of automated multistage continuous fermentation processes using high gravity substrates in combination.

- Designed and characterized an automated continuous reflux fractionation double column azeotropic distillation system for obtaining anhydrous hydrazine (99.9%) without the use of a third component such as aniline.

-Instrumental in the design, fabrication and operation of automated and fully instrumented liquid Hydrogen rocket engine test facilities under contract with NASA and JPL.

-Managed the Study of Composite Fiber, Cross-Linked High-Polymer Systems liners for “Re-start-able” Rocket Motors using N_2O_4 (Nitrogen Tetroxide) as oxidizer. –JPL

-Developed high polymer elastomeric propellant formulations and manufacturing methods for casting segmented solid rocket engines – Rockwell, Aerojet General & United Technologies Corp. (UTC)

-Independently conceived, developed and characterized a micro-capillary viscometer for determining absolute yield stress of polymers and gelled Hydrazine. –NSF

-Independently developed a bi-constituent gellation system for use in suspending metallic particles in hydrazine rocket fuel. –DOD

-Independently researched and developed and managed the first High-Polymer Nano-Composite Magnetic Tape Oxide Binder Systems for –Memorex Corp.

-Developed the first pilot R&D line for computer magnetic tape manufacturing studies for- Memorex Corp.

“Study of Flow-Induced Vibration in Chiksan Loading Arms” A. J. Amaro, D.C. Wooten, Chiksan Division FMC corp. SRI Physical science Division (Physics and Chemistry of Fluids)

“A Study of The Vulnerability of Small Arms Caseless Propellant Charges to Accidental Thermal and Shock Ignition” A. J. Amaro, J. Roth, E.L. Capner, Frankford Arsenal, Philadelphia, Penn, Stanford Research Institute

“Effectiveness of Fire Retardants in Natural and Man-Made Polymers by Heat Release Rate Calorimetry”, **A. J. Amaro**, A.E. Lipska Stanford Research Institute NBS Funded. Program.

-Independently designed and Developed High-Speed Jet System for Aerospace Jet Noise Studies. Designed full instrumentation for data acquisition and computer analysis–NASA

-Developed micro-hot-wire anemometers for noise and signal spectrum analysis. -NASA

-Developed unique shock-tube for the study of upper-atmosphere N_2-N^+ relaxation radiation. –NASA

- Collaborated in the development of a unique very high energy shock tube to study nuclear blast effects.

-Managed the R & D on High Speed Two-Phase Pipeline Flow Systems for powdered coal transport and technology transfer application to high-flux Heat Removal -NASA, DOE

-“Study of Rocket Solid Propellant Processing and High Temp Combustion Mechanisms” -UTC

-“Study of solid rocket propellant burning rate characteristics at various chamber pressures”. NASA

-“Study of particle size distributions of multiple component solids to obtain maximum bulk density of ammonium perchlorate in solid propellant rocket fuel ” –UTC

-“Study of Rocket Propellant Combustion Phenomenon During Rapid Depressurization” -JPL

-**“An Investigation of Spherical Blast and Detonation Waves in Rocket Combustion Chambers”** -NASA

-**“Study of Secondary Injection of CW Agents into A Supersonic Rocket Exhaust”** – DOD

-**“Study of the Combustion Kinetics of Liquid Hydrogen and Liquid Oxygen Rocket Engines Under Hard Start conditions.”** –NASA

-**“Study of Hypergolic Ignition of Liquid Hydrogen / Liquid Oxygen Rocket Engines Using Ozone Difluoride O₃F₂”** -NASA

- **Developed** and managed methods for high-speed photography of inside rocket engines using schlieren and interferometer optical systems to study shock induced unstable combustion dynamics at solid propellant surfaces-NASA

-**Independently** conceived of and developed a high-speed micro-spectrophotometer for continuous recording of solid propellant combustion zone surface reactions in vitro. – JPL, NASA

-**Independently** developed a bi-constituent gelation system for use in suspending metallic nano-particles in hydrazine rocket fuel. –DOD

-**Managed** the Development and Study of Rocket Propellant Hydrazine Decomposition Kinetics. –DOD

-**“Study of Turbulent Vortex rings as persistent IR decoy”**. –NASA

-**Independently** developed high-speed photographic methods for recording the dynamics of turbulent vortex rings. -NASA

-**“Investigation of Liquid Fluorine Hybrid Propellant Combustion”** -NASA

-**“Investigation of Hydrazine/Solid Propellant Hybrid Rocket Combustion Kinetics”** -NASA

-**“Studies of the Formation and Characteristics of very Large Explosive Aerosol Clouds”**. –Sandia, DOD

-**Developed** methods for obtaining particle size and distributions of high-velocity particulate flows -DOD

-**“A Study of The Generation and Decay of Trailing Vortices Behind Aircraft”** -NASA

-**“Research on Unstable Combustion in Solid and Liquid Propellant Rockets”** –JPL

Developed high polymer elastomeric propellant formulations and manufacturing methods for casting segmented solid rocket engines – Rockwell, Aerojet General & United Technologies Corp. (UTC)