

## **BIOGRAPHICAL INFORMATION**

**Edgar Zapata**  
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**KSC, FL 32899**

### **Short Version / for Introductions**

Mr. Zapata has worked with NASA at the Kennedy Space Center since 1988. He held responsibility for Space Shuttle systems including the Shuttle External Tank and the Shuttle cryogenic propellant loading systems, and related flight and ground propulsion systems. Since the mid 90's he began work to translate the operations experience into improvements in flight and ground systems design, technology, processes and practices.

Current work is focused on (1) Reusable Booster Systems (RBS) and low cost access to space in collaboration with the US Air Force Research Laboratory (AFRL), and (2) Nano-launcher studies for low cost access to space for emerging space and nano-satellites.

Mr. Zapata looks forward to the day when access to space is safe, routine and affordable, having taken advantage of the experience and lessons of past and current space transportation systems.

Mr. Zapata's work over the years is documented at:  
<http://science.ksc.nasa.gov/shuttle/nexgen/rlvhp.htm>

### **Long Version / Nexgen Site**

Mr. Zapata has worked with NASA at the Kennedy Space Center since 1988. He was born in New York City and studied in Puerto Rico where he earned a Bachelor's of Science Degree in Mechanical Engineering from the University of Puerto Rico. In his career with NASA he has been the recipient of numerous awards, for his work improving Space Shuttle operations processes and for his contributions to future space transportation systems studies, especially the introduction of the operations perspective into advanced projects.

During his time with NASA he has held the role of system engineer in the preparation and operation of Space Shuttle systems. These systems have included the Shuttle External Tank, the Shuttle cryogenic propellant loading systems/ liquid oxygen ground systems, and related systems. His operations experience has been relied on to provide leadership in defining future reusable space transportation systems. These concepts have included single stage and multiple stage reusable rockets as well as very advanced air-breathing space-planes, spaceports and architectures. He has represented the Kennedy Space Center operations perspective in multitudes of agency level studies, working groups, analysis and strategic efforts. This experience has included:

- 2014-current
  - Evolvable Lunar Architecture modeling and life cycle cost analysis
  - Evolvable Mars Campaign; commonality assessment
  - Capabilities development, of modeling and life cycle cost analysis for diverse space exploration scenarios within a NASA budget context

2013-2014	Nano-launcher Technology Assessment
2011-2012	Air Force Reusable Booster Systems (RBS) KSC/AFRL Study Team
2010-2011	Human-spaceflight Architecture Team, supporting life cycle cost analysis of propellant depots and space exploration architectures
2009	NASA Programmatic Risk Assessment Team in support of the 2009 Presidentially Appointed Review of Human Space Flight Plans Committee
2007-2010	PA&E/IPAO Standing Review Board, Constellation Program Ground Ops Project Recurring Cost Analysis
2007-2009	Constellation Program Architecture, Lunar Capabilities Concept Review, Strategic Analysis
2006	Smart Buyer studies, Green Propellant Studies (PAS, POS, etc)
2005	Explorations Systems Architecture Study (ESAS); KSC / ground systems cost analysis and integration
2002-2003	Orbital Space Plane (OSP) program
2003-2004	Next Generation Launch Technology (NGLT) program
2001-2002	Space Launch Initiative (SLI) studies
2000	Ended responsibilities as a NASA systems engineer
Late 1990's	KSC Vision Spaceport (VSP) project Began the first of many cost model developments that continue to this day
Late 1990's	Non-Toxic Orbital Maneuvering System (OMS) studies
Late 1990's	Shuttle Upgrades studies, Liquid Fly-Back Booster (LFBB)/Reusable First Stage (RFS) studies
Late 1990's	NASA Space Transportation Architecture Studies (STAS I and II)
Mid-late 1990's	Space Solar Power (SSP) studies in the field of Earth-to-Orbit (ETO) Space Transportation
Mid 1990's	Multiple advanced operations focused assignments in diverse X-vehicle programs
Mid-late 1990's	Highly Reusable Space Transportation (HRST) program
Mid-1990's	NASA Access to Space study
1988	Began responsibilities as a Shuttle systems engineer

Publications and papers include authoring or co-authoring numerous papers on operations research and the path to affordable, routine space transportation that will one day open the space frontier. His recent responsibilities have focused on the development of analytical capability, tools, software, modeling and simulations that can serve to understand the operations and the needed technology, design, and approaches, to improve future space transportation systems.

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