



**CALTECH / MIT**  
**ENTERPRISE FORUM**  
**S P A C E V E N T U R I N G**

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**Saturday, April 23rd at Baxter Hall**

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For decades, the development of technology for use in space has been the domain of large governments. However, recent advancements in materials, data processing and regulatory changes now make private space venturing possible. **SpaceShipOne**, designed by Burt Rutan and financed by Microsoft Co-Founder Paul Allen, made history last year as the first manned, private spaceship. **SpaceX**, funded by PayPal Co-Founder Elon Musk, will launch the first fully private rockets carrying commercial payloads into orbit. Soon **Virgin Galactic** will offer tourist flights into suborbit, and **Bigelow Aerospace** will send its inflatable hotel up in 2006.

At this Forum we will explore the various issues and opportunities presented by the new impetus towards space-related ventures, presented by those entrepreneurs most closely involved.

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#### **PROGRAM SCHEDULE**

- 8:00**            **Continental Breakfast served on the Ramo Building Patio**
- 9:00**            **Event Begins with Opening Remarks by Nick Nichols,  
Director of the Caltech Industrial Relations Center**
- 9:10**            **Presentations by Jeff Johnson, Gwynne Shotwell and Art Dula**
- 10:20**          **Panel Discussion led by Alexandra Barnett / Audience Q&A included**
- 11:00+**        **Adjourn for coffee and networking on the Ramo Building Patio**
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#### **MODERATOR**

**Alexandra Barnett / Executive Director and CEO, Chabot Space & Science Center**

Alex hosted a regular BBC TV series for two and a half years on astronomy and space, called *Final Frontier*. She also wrote the monthly sky guide column for the British magazine, *Astronomy Now*, and has authored two children's books on astronomy, *Black Holes and other Space Oddities* (2002) and *DK Space: Revealed* (2004). She produced her first general reader book, *Cosmic Company* (2003), in collaboration with the SETI Institute.

Since taking over as CEO of the Chabot Space & Science Center, Alex has restructured the business and is driving the facility towards fiscal stability and continuing innovation in education and public programming. Chabot is also engaged in many new partnerships with industry, working hard to address the issues of education and workforce development. As Creative Director for the UK's National Space Centre, Alex drove the vision for the visitor experience, oversaw the installation of the first Challenger Learning Center outside North America, and built a state-of-the-art planetarium facility. She secured a large part of the funding for the £52m project and grew the staff to over 100 at opening. She holds a degree in Astrophysics and also studied Planetarium and Science Center management in the U.S.

## **PRESENTERS**

### **Jeff Johnson / Senior Research Program Manager, Aviation Projects, Vulcan Inc.**

Jeff is the primary representative of Vulcan on space projects, and worked very closely with Burt Rutan and the other members of the team at Scaled Composites during this endeavor in developing, testing and flying SpaceShip One, the world's first privately-funded and -developed spacecraft. SpaceShip One broke numerous records, including the high altitude mark set by the government's X-15.

Previous to Vulcan, Jeff spent 8 years at Microsoft, working on projects ranging from printing to MSN to Windows Update. He received a B.A. in Engineering Science from Dartmouth College in 1985, and an MBA from the Columbia Business School in 1987.

### **Gwynne Shotwell / Vice President, Business Development, Space Exploration Inc.**

Gwynne carries a range of responsibilities at SpaceX including the development of the customer base for SpaceX vehicles and managing strategic relationships. Her experience prior to SpaceX includes over ten years at the Aerospace Corporation where she held positions of increasing responsibility in Space Systems Engineering and Technology, and Project Management. Highlights include promotion to Chief Engineer of an MLV-class Satellite program, managing a landmark study for the Federal Aviation Administration's on Commercial Space Transportation, and completing an extensive space policy analysis for NASA's future investment in space transportation. After Aerospace Corporation, she was recruited to be manager of the Space Systems Division at Microcosm, where she served on the Executive committee and directed corporate business development.

Gwynne received her Bachelor's and Master's Degrees from Northwestern U. in Mechanical Engineering and Applied Mathematics. She also serves as an officer of the Space Systems Technical Committee of the AIAA, and has authored papers in a wide variety of areas including standardizing spacecraft/payload interfaces, conceptual small spacecraft design, infrared signature target modeling, Space Shuttle integration and reentry vehicle operational risks.

### **Art Dula / Aerospace and Intellectual Property Lawyer / Law Professor**

Art is a founder and lawyer for Space Services, Inc. and the Space Commerce Corporation (the first US/Russian aerospace joint venture) and other past and present aerospace firms in the US and Russia. Other projects involve changing legislation to allow private ownership of minerals mined in outer space and other key initiatives. He is a Professor of Space Law at the University of Houston School of Law, a charter member of the International Space University Founders Association, past chairman of the American Bar Association's Section on Science & Technology and of the ABA's Aerospace Law Committee, member of the International Institute of Space Law, an associate fellow of the American Institute of Aeronautics & Astronautics and a fellow of the British Interplanetary Society.

Art served as outside legal consultant to NASA on the Space Shuttle payload contract and as a legal advisor to the U.S. Congress, Office of Technology Assessment for legal regime on the International Space Station. In addition to being the Trustee of the Heinlein Prize Trust; executor of Robert Heinlein's literary estate, he holds both the U.S. National Space Society's Space Pioneer award and the Gagarin Medal of the Russian Federation of Cosmonautics, and owns the only piece of Sputnik I that still exists (now on loan to the Smithsonian).

## **PANELISTS**

### **John Stone / Director, Near Earth LLC, Specialists in Space-Related Investment Banking**

John has extensive experience in corporate finance and as a senior research analyst for both equity and debt securities. These, combined with his strong background in science and engineering bring a combination of financial acumen, broad technical knowledge and a scientist's rigor as applied to space-related investment banking. Immediately prior to joining Near Earth, he worked in the corporate finance unit of National Securities, where he was involved in sourcing, banking and distribution of private placements for early stage technology companies. Earlier, he worked as a senior equity and debt analyst at Ladenburg Thalmann and Company, where he covered satellite and cable broadcasting equities, satellite/launch vehicle manufacturers and the debt of a satellite networking company. Prior to working in finance, he was employed as a senior project engineer with Boeing, Hughes Electronics, General Dynamics and Computer Sciences Corporation, involved in project management, software development and design roles on a variety of commercial, military and scientific space missions.

John began his career with an appointment as an Astronomer at the U.S. Naval Observatory, where he measured star positions. He holds an MBA from UCLA's Anderson Graduate School of Management, a Master's of Science in Astronomy from the University of Maryland, and a Bachelors of Science in Physics from the University of Rochester.

### **John Spencer / Founder and President, Space Tourism Society**

John is a space architect and a pioneer in what he calls "The Design Frontier." He creates, designs, and develops his own space tourism-, Lunar/Mars-, and future-themed immersive simulation projects, while serving as a conceptual designer for some of the world's largest corporations. Since 1978, he has been recognized as a pioneer in the field of outer space architecture. He completed the first interior designs of the Spacehab module in 1983/4, which have now flown on orbit more than a dozen times. In 1995 he was awarded the Space Act Award and the Certificate of Recognition from NASA for innovative architectural design on the International Space Station (ISS). He is the founder/president of the nonprofit Space Tourism Society, and the author, with Karen L. Rugg, of the first book on space tourism published in the United States titled, "Space Tourism: Do You Want to Go?." He has been designing the world's first orbital super yacht called "Destiny," premiered in this book.

As a real estate developer and site master planner, he coined the term "Experience Park" in the mid 1990s and then "SimNauts" to describe a new generation of totally immersive adventure vacation simulation experiences he is currently designing and developing. He is the president, and chief designer of Red Planet Ventures, Inc. (RPV) a research, design, licensing, and branding company, creating a wide range of Mars-themed simulation and media ventures ranging from a "Mars Resort and Spa" to a "Mars Expedition Base" to be built in the Mojave Desert opening in late 2007, to a "Mars Camp," and the "Mars Hall of Fame." John has been quoted in numerous magazines and newspaper articles on Space Tourism, and has appeared on The Today Show, CNN, ABC, CBS News, and on more than a dozen other television programs, including the Discovery Channel, PBS, Japanese NHK, and the Learning Channel.

## PRODUCER

### David Knight / President and CEO, Terbine, Inc.

David is a 'serial entrepreneur' with over twenty years' experience in starting, building, selling and taking public companies in the consumer and technology arenas. His range of knowledge covers telecommunications, laser-based systems, defense electronics, messaging, broadcast production and more. As an executive or Board member he has participated in several dozen companies over the years, some of which are now part of IBM, Microsoft, Quantum and other notable manufacturers. His most recent venture, Big Moving Pictures (formerly known as The Terbine Project) takes advantage of the innovations in large-format display technology now becoming available, and leverages strong partnerships in the media and advertising industries.

In 2004, David left the world of Silicon Valley to get involved with a true ad-venture: becoming the Vice President of the X PRIZE Foundation, who brought the world's largest achievement prize to bear on the challenge of initiating private spaceflight for tourism and other purposes. Of course, the X PRIZE was won on October 4<sup>th</sup> by the SpaceShip One team led by Burt Rutan, and excited a new group of future space entrepreneurs.

David is involved with other non-profit activities including the Carolwood Pacific Society (holders of Walt Disney's workshop amongst other treasures) and the MIT-Caltech Enterprise Forum. He is "a UCLA Physics guy who has never been paid to be a physicist" and a former Member of the UCLA Venture Fund board. In 2001, he received the Computerworld-Smithsonian Medal.

## PARTNERS

The MIT-Caltech Enterprise Forum wishes to thank the following organizations for their involvement with the production and marketing of the 2005 Space Venturing Forum:



THE SPACE TOURISM SOCIETY

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