



Huntsville, Alabama  
February 3-6, 2013

Welcome to the Second Tennessee Valley Interstellar Workshop and to Huntsville, Alabama, aka "Rocket City, USA." It is my pleasure to welcome you on behalf of the workshop's organizing committee. We sincerely hope that you come away from the workshop with your horizons expanded, your expectations for the future of humanity raised, and with a renewed sense of wonder at the universe around us and the perhaps the greatest challenge that we, as humans, might ever face - how to become an interstellar species.

In addition to a stellar set of speakers, we've arranged for a tour of the facility where Nexolve Corporation is building the sun shield for the James Webb Space Telescope and the facility where United Launch Alliance builds both Delta and Atlas rockets. In addition, just down the road from our conference venue is the US Space and Rocket Center (the NASA Marshall Space Flight Center's Official Visitor's Center) where you can see a both a Saturn V rocket, a Space Shuttle, and many other space artifacts.

We're not yet building starships, but when the history of our first extrasolar colony is written, you can be sure that the spacecraft design and development work done in Huntsville will be included -- and perhaps some of the topics discussed during this workshop.

I'd like to personally thank our sponsors, without whom this workshop would not have been possible:

- Nexolve Corporation

- Baen Books

- The Ultimax Group

- The British Interplanetary Society

- The Institute for Interstellar Studies

- The Huntsville Alabama L-5 Society

- The ORION Amateur Science and Astronomy Club

I hope you have a great week in Huntsville - Ad Astra!

Les Johnson

Chairman, Second Tennessee Valley Interstellar Workshop

Deputy Manager, NASA MSFC Advanced Concepts Office

Co-Editor of Going Interstellar from Baen Books  
**Program for 2<sup>nd</sup> Tennessee Valley Interstellar Workshop -  
"Let's Get Started!"**

**Sunday evening, 03 February 2013**

5:00 – 9:00 p.m. **Reception** by **Baen Books** and **The Ultimax Group Inc.**  
Location: Edgewater Community Club, 111 Edgewater Dr., Madison, AL 35758

**Monday, 04 February 2013 - plenary sessions for colloquium** all day

Location: NeXolve Corporation, 655 Discovery Drive, Building 3, Suite 200,  
Huntsville, AL 35806

- 7:30 a.m. – Registration  
8:00 a.m. – “Welcome and Opening Remarks” (Les Johnson/NASA, chair, TVIW)  
8:15 a.m. – **Monday’s keynote:** astronaut Dr. Jan Davis “Flying Astronauts in  
Space – Challenges & Oppos”  
9:00 a.m. – “Black Hole Devours Star over Huntsville (The Draco Kill Shot)”  
(William Lucas Jr./self)  
9:20 a.m. – “Institute for Interstellar Studies & Catalyzing Starship R&D” (Kelvin  
Long/British Interplanetary Society)  
9:50 a.m. – **Coffee Break**  
10:20 a.m. – “Things We Need to Know about the Brain Before We Go” (Dr. Robert  
Hampson/Wake Forest School of Medicine)  
10:45 a.m. – “Evolving Algorithmic Communication Structures for Interstellar Travel  
& SETI” (Dr. David Fields/Tamke-Allan Observatory & Oak Ridge Isochronous  
Observation Network, Dr. Stan Kurtz/Autonomous National University of  
Mexico, Dr. H.Paul Shuch/SETI League, Dr. Susan Hogle/ORNL, Dr. Paul  
Oxley/SARA, Bogdan Vacaliuc/ORNL, R.Kennedy/Ultimax, K.Roy/Ultimax)  
11:10 a.m. – “Sorry We Didn’t Mean to Break Your Culture” (Dr. Robert “Sam”  
Lightfoot/South Georgia State College)  
11:35 a.m. – “Dyson Dots: A Longer View” (Robert G Kennedy III PE/The Ultimax  
Group, Eric Hughes/Narhex)  
12:00 p.m. – **Lunch** and **Workshop Plenary Panel I** (E. Hughes, S. Lightfoot, R.  
Kennedy, L. Johnson)  
0h:30m - nosh on box lunch in hallway then schmooze;  
0h:05m - quick intro of common work purpose “Let's Get Started!”  
(R.Kennedy);  
0h:30m - “The Next Step: Orbital Industry and National Militaries” (E.Hughes);  
0h:10m - prepared response “Space: The View from ‘Within the Beast’”  
(L.Johnson);  
0h:10m - prepared response “Space Dev & Interstellar Travel Means WMD”  
(R.Kennedy);  
0h:10m - prepared response “Thoughts & Ideas on Eric Hughes’s  
Presentation” (S.Lightfoot);  
0h:05m - quick summary & announce focus areas for 3 parallel BoF sessions  
tonite (E.Hughes);  
0h:20m - open Q&A with audience  
2:00 p.m. – “Colonizing Brown Dwarfs and Orphans” (Ken Roy PE/Ultimax)  
2:25 p.m. – “Destinations for Colonization” (Stephen Covey/Deep Space Industries)  
2:50 p.m. – **Coffee Break** and **Group Picture** (Carol Johnson/self)

3:20 p.m. – “Martians Will Make the Best Interstellar Voyagers” (Gerald Driggers/ret’d High Frontier)  
3:45 p.m. – “The Search for Man 2.0” (Dr. Frederick Sloop/ORNL & ORION)  
4:10 p.m. – “Interstellar Travel Without ‘Magic’ ” (Dr. Gordon Woodcock/L5)  
4:40 p.m. – “Interstellar Flight: From Conception to Reality” (Dr. Richard Obousy/Icarus Interstellar)  
5:05 p.m. – “Private Funding of Space Ventures” (Amy L. Herring Esq., JD)  
5:30 p.m. – **adjourn for dinner on your own**

8:00 p.m. – **Evening Workshop: parallel Birds-of-a-Feather sessions** (“BoFs”)  
Location: [mtg rm TBA] Holiday Inn, Research Park, 5903 University Drive, Huntsville, AL 35806

1h:30m - <u>BoF session I</u>	<u>BoF session II</u>	<u>BoF session III</u>
theme "What Does a 50-Year Plan for "Credible Missions in /focus: 1 Orbital Terawatt Look Like?" 5- to 10-Year Horizon"	"Defining the Politics & How to Get Them Involved"	
facilitator: E.Hughes	S.Lightfoot	R.Kennedy.

Les Johnson will also serve as a roving facilitator.

9:30 p.m. – **Nighttime Dessert Break** (in suite # TBA onsite)  
10:00 p.m. – reconvene **3 parallel BoFs**, OR (dep. progress) **plenary Work Group** for **Synthesis Report**

**Tuesday, 05 February 2013 - plenary sessions for colloquium** all day  
Location: NeXolve Corporation, 655 Discovery Drive, Building 3, Suite 200, Huntsville, AL 35806

7:30 a.m. – setup and registration  
8:00 a.m. – **Tuesday’s keynote:** Dr. Claudio Maccone, chair/IAA SETI Perm. Cmte.: “Mathematical SETI”  
8:45 a.m. – “Build A Star Ship–100YSS & Application of Messaging, Audacity, Timeline, & Deliverables towards Interstellar Accomplishments” (Mike Mongo/Icarus)  
9:10 a.m. – “Putting It All together – Lessons Learned & Capabilities for Large Next-Gen Solar Sails” (Greg Laue, Tony Ewing/Mantech-NeXolve)  
9:35 a.m. – “High Temperature Nanocomposites for Nuclear Thermal Propulsion by Hyperbaric Laser Chemical Vapor Deposition” (Dr. James Maxwell/Dynetics, et al.)  
10:00 a.m. – **Coffee Break**  
10:30 a.m. – “Looking for Ultra-ships” (Dr. Al Jackson IV/NASA JSC)  
10:55 a.m. – “Growing Spaceships?” (Tony Robertson/IASSPES)  
11:20 a.m. – “Developing a Single-Person Emergency Atmospheric Re-Entry Device (SPEARED) for Use in Catastrophic Failures of Entry Vehicles” (Stephanie Osborn, Arlan Andrews Sc.D., Tom Ligon/SIGMA)  
11:45 a.m. – **Lunch and Workshop Plenary Panel II** (E.Hughes, R.Lightfoot, R.Kennedy, L.Johnson)  
0h:30m - nosh then schmooze;  
0h:30m - present results of synthesis group (E.Hughes, R.Kennedy);

0h:10m - prepared responses to synthesis report (S.Lightfoot);  
0h:10m - prepared responses to synthesis report (L.Johnson);  
0h:55m - open Q&A, maybe audience puts up a tribune or two by acclaim  
from the floor  
2:00 p.m. - "Initial Base Development Using Current Modular Techniques: A Study"  
(Travis Taylor, S.Osborn)  
2:25 p.m. - "The Hub Hab: A Self-Sufficient Planetary Habitat and Lander" (Ed  
Kiker/Kepler Space Inst.)  
2:50 p.m. - **Coffee Break** and second? **Group Picture** (C.Johnson)  
3:20 p.m. - (approx.) **Space Industry Plant Tour I**: walk/ride to NeXolve's Webb  
solar shield facility  
5:20 p.m. - (approx.) **adjourn for dinner on your own**

7:00-9:00 p.m. - **Interstellar Forum for the Public & the Press w/HAL5**  
(Huntsville NSS chapter)

Location: Calhoun Community College, 102 Wynn Dr. NW, Huntsville  
0h:10m - intro by Lisa Callihan/host, Calhoun Comm.Coll. & Les  
Johnson/NASA;  
0h:25m - "Using Video to Engage Interstellar Comm'ty, Gov't Agencies &  
Public" (Bill Cress/Icarus);  
0h:25m - "Slow Boat to Centauri: A Millennial Route to Interstellar Expansion"  
(Paul Gilster/Tau Zero);  
1h:00m - Forum panel continues inc. B.Cress, P.Gilster, R.Obousy, K.Long,  
G.Woodcock);  
9:00 p.m. - clean up @ forum, transit to hotel

**Wednesday, 06 February 2013 - offsite plant tour all morning**

8:00 a.m. - depart Holiday Inn for transit to Decatur, AL (must be previously signed  
up)  
9:00 a.m. - Space Industry Plant Tour II: Delta IV assembly facility in Decatur, AL  
11:00 a.m. - depart Decatur & transit back to Huntsville Holiday Inn

**TVIW 2013 officially adjourns**

A note about the "BoFs": This event serves as both a Colloquium to present papers  
of interest to colleagues and a Workshop to get things done. The purpose of the  
Parallel Birds-of-a-Feather ("BoFs") sessions is to answer the questions: - What are  
the things we (the Workshop, also the human race) need to do next? The world has  
to be far wealthier to do a trip to Alpha Centauri. So if you want to go to another  
star, you should spend your career making the human race richer/more powerful.  
(This was Herman Kahn's view too.)

**Short bios for our presenters and key personnel (in boldface), in order of  
appearance**

(co-authors who are not scheduled to be present shown in plaintext)

**Martha Knowles**, your registrar, will be the first person you see. She is Ken Roy's  
wife, a habitué of many space and sci-fi cons (especially LibertyCon and WorldCon)  
as well as long-time participant in the Society for Creative Anachronism . She  
administered the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in Nov 2011.

**C. Les "Les" Johnson** is a husband (of Carol, see below), proud father of Carl and  
Leslie, physicist, author (co-editor of Going Interstellar from Baen Books), not to

mention his day job as NASA's deputy manager of Advanced Concepts at Marshall Spaceflight Center. His professional career has been focused on advanced or innovative propulsion techniques, particularly with light. Together with his co-author Greg Matloff, Ph.D., and collaborator Robert Kennedy, he founded the Tennessee Valley Interstellar Workshop in a hotel in the Italian Alps during the 7<sup>th</sup> IAA Symposium in Aosta, Italy in July 2011.

Nancy **Jan Davis**, Ph.D., PE, is a professional mechanical engineer and former American astronaut. A veteran of three space flights, Dr. Davis has logged over 673 hours in space. She is a fellow of the ASME, member of Tau Beta Pi, Omicron Delta Kappa, Pi Tau Sigma, and Sigma Gamma Tau. She has been awarded the NASA Outstanding Leadership Medal in 1998, the NASA Exceptional Service Medal in 1995 and 2002, and the NASA Space Flight Medal in 1992, 1994, and 1997, ASME's national Old Guard Prize in 1978. She has been inducted to the Alabama Aviation Hall of Fame, the Alabama Engineering Hall of Fame, and the Presidential Rank Award of Meritorious Executive. Dr. Davis is now retired from NASA, and currently works for Jacobs Engineering Group as a Vice President and Deputy General Manager.

**William Lucas** is a lucky and very well-prepared teenage scientist who was the first to watch the skies in the Draco constellation around March 28, 2011, serendipitously observing and detecting a 3.8 billion-year-old gamma ray burst (aka Swift J 1644+57) with a full-spectrum Geiger counter in his Huntsville, Alabama home. In addition to being the only known amateur observation of this record-setting energetic event, it earned him a raid on his home, whilst sitting in school, by the Department of Homeland Security plus an alphabet soup other federal agencies, due to his having innocently but purposefully placed his real-time ionizing radiation detector on the International Radiation Grid.

**Kelvin Long** is an aerospace engineer and physicist, and the Executive Director of the Institute for Interstellar Studies (I4IS). He is also the Chief Editor of the *Journal of the British Interplanetary Society* and author of the text *Deep Space Propulsion: A Roadmap to Interstellar Flight*. He has authored many popular articles and technical papers on the subject of interstellar travel and systematically has worked to catalyze the interstellar community by the organization of many initiatives such as conferences on the warp drive and world ships and starship design studies.

**Robert Hampson**, Ph.D. is Associate Professor of Physiology & Pharmacology at Wake Forest School of Medicine in North Carolina. His dedication to science advocacy and brain awareness has led him to pursue these interests as an advisor to science fiction authors and to represent neuroscience and biology via science fiction conventions throughout the southeastern U.S. Under the *nom de plume* of "Tedd Roberts" he creates fiction, science-fact blogs and articles directed to science fiction writers and readers alike. He has participated in more than 20 international meetings and seminars, and held a Professor of Research position at the University of Aberdeen (Scotland) from 2004 to 2011. With over 100 peer-reviewed articles, 20 book chapters, two patents and 30 years of presentations and teaching, he is equally dedicated to continued innovative research and brain science education.

**David Fields**, Ph.D., is an experimental physicist, formerly of ORNL, founder/president of ORION and now Director of Tamke-Allan Observatory. At the 1<sup>st</sup> TVIW in 2011, he discussed a new radio astronomy band and a novel approach to SETI. He worked with K.Roy & R.Kennedy on geoengineering concepts, coined the moniker, “Dyson Dots” and is helping design/build RASDR, an SDR for radio astronomy. Stan Kurtz, Ph.D. is an astrophysicist and staff radio-astronomer at the Autonomous National University of Mexico (UNAM), as well as being on the scientific advisory board of the Very Large Array. H.Paul Shuch, Ph.D. is a microwave engineer and the inventor of home satellite TV, founder and director *emeritus* of the SETI League, and past president of the Society of Amateur Radio-astronomers (SARA). He is also a private pilot. Susan Hogle, Ph.D. is a researcher at Oak Ridge National Laboratory (ORNL). Paul Oxley, Ph.D., is a retired systems engineer at Bell Labs and past vice president of SARA. **Bogdan Vacaliuc** is an electrical engineer on the Spallation Neutron Source at ORNL, and co-developer (together with D.Fields & P.Oxley) of the RASDR (radioastronomy software-defined radio) concept. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011. Blurbs for R.Kennedy and K.Roy are below.

**Robert “Sam” Lightfoot**, Ph.D., is an anthropologist, criminologist, and associate professor at South Georgia State College (formerly called Waycross College). He received his Ph.D. in Criminal Justice from FSU in 2007. An active researcher in the fields of sociology and criminal justice, he includes research on solar and extra-solar exploration and social consequences as a necessary area for our preparation. He is also a research and consulting archaeologist, European contact with native cultures being the major focus. He also teaches and practices Judo, Jujitsu, and European Sword. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Robert G. Kennedy III**, PE is a senior systems engineer doing green energy at the local, regional and national levels. He invented the Tetrageneration™ concept. Educated in the classics and foreign languages since childhood (Latin, Greek, Arabic, and Russian), he took a master’s degree in national security studies. He was a roboticist at Douglas Aircraft, investigated artificial intelligence at ORNL, an official hacker since 1989, and after the end of the Cold War, founded Ultimax Group Inc., a Russian-American trading company in Oak Ridge, Tenn. He spent a year as ASME’s Congressional Fellow working for the House Subcommittee on Space. With his co-authors K.I.Roy and D.E.Fields, he has appeared multiple times as both writer and illustrator in *JBIS*, *Spaceflight*, *Smithsonian Air & Space*, and *Acta Astronautica*, on the subjects of geoengineering, terraforming, and Soviet/Cold War history. Just before the first TVIW in 2011, he gave an invited lecture on “Dyson Dots” to the Russian Academy of Sciences in Moscow. Along with Les Johnson and Greg Matloff, he is one of the co-founders, and chief sponsor, of the TVIW. He shares homes with his wife Barbara Jackson, 11 cats, 2 dogs, and a whole lot of rolling iron.

**Eric Hughes** holds an A.B. in Mathematics from UC Berkeley, and has defined his intellectual life around a concern with foundations, be they axiomatic foundations of mathematics and physical theory or the historical and psychological foundations of society. He says he reads both research mathematics and French philosophy with equal enjoyment. He goes on: “In the hybrid center of this continuum, I concern myself with the intersection of technology and society. In 1992, I was a founder of

the cypherpunks, an activist group for privacy and cryptography. Central to this group was a concern with a proper relationship between large-scale power and small-scale private life. My talk at this conference is also in the hybrid, at the intersection of industrial infrastructure in space and military power. I have an abiding interest in promoting amateur science, and have also been researching the possibilities for amateur construction of instrumentation and experimental apparatus, blending modern electronics such as 3D printing with traditional handicraft techniques such as glassblowing.”

**Kenneth I. “Ken” Roy**, PE is an engineer living and working amidst the relics of the Manhattan Project in Oak Ridge, Tennessee. He invented the “Shell Worlds” concept, in addition to independently discovering the utility of lightsails as effective sunshades (“Mirrors & Smoke”, now known as “Dyson Dots”) at the Sun-Earth L1 point. In 1997, he made the cover of the prestigious *Proceedings of the U.S. Naval Institute* for his startling solo forecast re: military affairs, “Ship Killers from Space”. With his co-authors R.G.Kennedy and D.E.Fields, he has appeared multiple times in *JBIS* and *Acta Astronautica*. He is a graduate of the Illinois Institute of Technology and the University of Tennessee at Knoxville in engineering. He enjoys reading science fiction and books on terraforming. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Stephen D. Covey** was formerly the Director of R&D for Applied Innovation Inc., and is now a co-founder of Deep Space Industries. He has authored papers on topics ranging from “Optical Ethernet” to “Considerations for Asteroid Capture into Earth Orbit” and “Design Considerations for Orbital Settlements”. He will chair the Asteroid track at the 2013 International Space Development Conference in San Diego. His educational website about minerals ([www.galleries.com](http://www.galleries.com)) presents information on primordial rocks and minerals, including asteroids and comets. An editor for the *NSS Space Settlement Journal* ([www.nss.org/settlement/journal](http://www.nss.org/settlement/journal)), he also writes science fiction and a futurist (pro-space) blog: [RamblingsOnTheFutureOfHumanity.com](http://RamblingsOnTheFutureOfHumanity.com).

**Carol Johnson** is Les’s wife, proud mother of Carl and Leslie, and habitué of many space and sci-fi cons. She administered the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011, as well as coordinates and hosts all of Les’s famous *Stammtisch* meetings.

**Gerald W. Driggers** retired after a career as an aerospace engineer and now writes science fiction for fun and profit. He was prominent in studies of space colonization and space industrialization with Dr. Gerard K. O’Neill in the 1970s. He was an officer in the USAF working on satellite launch vehicles. He has published over 35 technical papers and general interest articles and contributed to three books on technical subjects. One of his greatest privileges was to receive a prestigious national award presented by Sir Arthur C. Clarke. Gerald embraced the dreams of Dr. Werner von Braun and his team at an early age and was privileged to meet and work with many of them. For 17 years Gerald lived on a series of boats because, as he states, “It was the closest thing I could get to a space ship.” He currently resides in Florida with his wife and Wilson the cat.



**Frederick V. Sloop Jr.**, Ph.D. is a research scientist at ORNL and frequent contributor to ORION. He is the proud father of two gifted daughters, one of whom (Katie) has an asteroid the size of New York City named after her. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in Nov 2011.

*Excerpted from the National Space Society/HAL5 award, "For A Lifetime of Service to the Space Community"*: This Space Pioneer award is given to honor **Gordon Woodcock** for his many contributions to the advancement of space technology, concepts, and advocacy in a great variety of areas. After getting his engineering degree from Oregon State in 1954 and starting the same year with Boeing, his 57 year aerospace career is still continuing as a consultant for several companies. He worked on the Saturn V first stage (S1-C) development and various other projects in Huntsville. Then he helped with the Space Shuttle initial design, and was the Principal Investigator for Boeing's Solar Power Satellite Study of 1977-1980. At Boeing he was involved with the space station proposal team, and space transportation concepts and architectures. He served as President of L5 (1984-86) and also served as an NSS Director and as the Chairman of the NSS Executive Committee and is currently serving as a member of the NSS Policy Committee. After he retired from Boeing in 1996, he has continued his full participation in this field, with the publication of over 100 books and articles, with current books and AIAA papers coming out on space mission architectures for beyond Low Earth Orbit. His book "Space Exploration Mission Engineering" is due out from Krieger Publishing in November, 2011.

**Richard Obousy**, Ph.D., is a theoretical physicist and currently President for Icarus Interstellar, a non-profit research foundation dedicated to researching technologies that will enable breakthroughs in interstellar travel. He is also a regular guest contributor for *Discovery Space News*. His dissertation titled "Investigation into Compactified Dimensions: Casimir Energies and Phenomenological Aspects", was largely focused on understanding the nature of the vacuum of quantum field theory. Prior to this, Dr. Obousy worked for the UK Defense Evaluation and Research Agency (DERA) as a radar physicist. He successfully organized an award-winning polarimetric radar experiment in Hawaii in 2001. He contributed a chapter for the book *Going Interstellar*, edited by Jack McDevitt and Les Johnson (see above), and has contributed numerous articles to *JBIS*, *Mod.Phys.Lett*, etc. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Amy L. Herring**, JD is a Huntsville-based attorney with a personal interest in space exploration. She has participated, either as a lawyer or as an investment banker, in financings in excess of one billion dollars in principal amount including commercial securities, government bonds, and tax-exempt and taxable bonds for private projects for companies and non-profit organizations. She has acted as bond counsel, underwriters' counsel, and borrower's counsel for millions of dollars in bonds. She started her own solo practice in 1993. She is an active member of the Alabama Bar Association and is licensed to practice before all courts in Alabama. She has appeared before the United States District Court for the Northern District of Alabama, the Eleventh Circuit Court of Appeals, and the United States Supreme Court. A former member of the National Association of Bond Lawyers and the National Space Society, Herring is a member of the Huntsville Area L5 Society. She

is also an author with a number of short stories published including three in the science fiction genre ([www.louiseherring-jones.com](http://www.louiseherring-jones.com) ).

**Claudio Maccone**, Ph.D., is a mathematical physicist and a Technical Director of the International Academy of Astronautics (IAA), as well as the new chair of the IAA's Permanent Committee on SETI, succeeding Seth Shostak. He invented the "FOCAL" mission concept, a spacecraft/antenna intended to be launched outside the solar system to 550 AU to exploit the huge radio magnification provided by the gravitational lens of the Sun, as predicted by general relativity. He has worked for many years applying advanced signal-processing algorithms, such as the Karhunen-Löve Transform with bordered autocorrelation matrix (KLT-BAM) to the SETI problem. [www.maccone.com](http://www.maccone.com) He was honored by the SETI League with the "Giordano Bruno Award" "for technical excellence in the service of SETI", and is the author of the textbook *Mathematical SETI*, published by Praxis-Springer. Coincidentally, he also has an asteroid named after him, and he attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Mike Mongo** is a noted space blogger and the author of HUMANNAIRES! Mike Mongo's Astronaut Instruction Manual for Pre-Teens. He has been a dedicated proponent of astronautics-as-a-career for students in the US and abroad. As a public speaker and educator, he works to encourage primary, middle-school and high school students to pursue careers in astronautics and space-related fields. He was a Presenting Author at the 100-Year Starship Symposium (100YSS) in 2012 and is presently one of a three-person planning committee, with Luke Blaize and Dr Andreas Tziolas, for Icarus Interstellar.

**Greg Laue** is a mechanical engineer and Director of Aerospace Products for ManTech/NeXolve Corporation, a wholly owned subsidiary of ManTech International. Together with his co-author, **Tony Ewing**, he manages the design, development and production of thin film products for both government and commercial applications. For over six years, Mr. Laue has served as program manager of the Sunshield Membrane for JWST at ManTech and is the principal inventor and developer of the enabling technologies for the Sunshield system. He manages a team of over 30 engineers, scientists and manufacturing technicians for the JWST Sunshield and is currently producing full-scale flight-like template membranes for integration with NGAS Flight hardware in 2012. Mr. Laue also managed the solar sail system development for the NASA's In-Space Propulsion, 20-Meter Solar Sail Ground Demonstration Program teamed with ABLE Engineering, Marshall, Langley, and JPL. Recently his efforts led to the development of a Cubesat solar sail deployment system in partnership NASA. This effort culminated in the successful on-orbit deployment demonstration of the Nanosail system, which is currently operating in Low Earth Orbit and is visible to ground observers

**James Maxwell**, Ph.D., formerly of Los Alamos National Laboratory, where he was a research scientist and team leader, is currently the Group Leader for the Advanced Materials and Nanosystems group at Dynetics. He has been a professor at Louisiana Tech University, and an NSF International Fellow, studying laser materials processing and inorganic chemistry at Uppsala University in Sweden. He holds a Ph.D. From Rensselaer Polytechnic Institute in Mechanical Engineering, an M.S. from the California Institute of Technology in engineering, and a B.S. in Physics from

Brigham Young University. He has interests in high temperature materials, nuclear propulsion, and interstellar probes.

**Albert Allen “Al” Jackson IV**, Ph.D., earned his doctorate in relativistic astrophysics from UT-Austin in 1975. At NASA’s Johnson Space Center, Houston, he performed: flight crew training, mission planning software, orbital debris modeling, engineering simulation. Dr. Jackson has published articles in planetary physics, astrodynamics of interplanetary dust and Earth orbital debris and interstellar flight, and has research experience in astrodynamics, astronautics, and planetary astrophysics. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Tony Robertson** interests include advancing space propulsion technologies beyond the current state-of-art, specifically toward real space exploration. He formed the not-for-profit “Institute for Advanced Studies in the Space, Propulsion & Energy Sciences (IASSPES)” primarily to hold the “Space, Propulsion & Energy Sciences International Forum.” Over 25+ years of service, he was awarded 5 NASA patents with a 6th one pending and has submitted 3 others (pending) under the auspices of IASSPES. He attended and presented at the 1<sup>st</sup> TVIW in Oak Ridge, Tennessee in November 2011.

**Stephanie Osborn**, “interstellar woman of mystery”, is a former timeline engineer for the Space Shuttle program and is now an active science fiction writer ([www.Stephanie-Osborn.com](http://www.Stephanie-Osborn.com)). Together with her co-authors, Arlan Andrews Sc.D., and Tom Ligon, she is a member of SIGMA.

**Travis Shane Taylor**, Ph.D., is an aerospace engineer, optical scientist, science fiction author, and star of National Geographic Channel’s *Rocket City Rednecks*. A self-proclaimed “redneck rocket scientist”, Taylor focuses on “hillbilly ingenuity” for the show’s backyard science experiments, aided by his family and best friend whom are all machinists and inventors. Taylor has written more than 25 technical papers, 14 science fiction novels and two textbooks, and has appeared in multiple television documentaries, including NGC’s recently highly-rated special *When Aliens Attack*. Among other works, he is the author of *Introduction to Rocket Science and Engineering* (CRC Press), “Preliminary analysis of light sail systems engineering concepts” (AIP), “In-space propulsion: connectivity to in-space fabrication and repair” (NASA), and “Solar sail application to comet nucleus sample return” (NASA).

**Edward “Ed” Kiker** attended Harvard University 1966-70, with major in Lunar Geology. He designed and completed the Classification System for the Lunar Rilles at NASA-Goddard Space Flight Center, Greenbelt, Maryland, and participated in selection of Hadley Rille as the landing site for Apollo 15. He served four years as an Army Engineer Officer in Alaska, Korea, and Virginia. Today Ed is a General Engineer and Executive Officer for the Office of the Chief Technology Officer, US Army Space and Missile Defense Command/Army Forces Strategic Command in Huntsville, Alabama, responsible for researching new technologies for space and missile defense. On his own time Ed has long worked developing technologies for mining the Moon and building a base on the Moon. He made the major presentation on Mining the Moon at the Second UN Space Conference in Vienna, Austria. Ed was one of the first members of the L5 Society, is a Life Member of the National Space

Society, and is a founding member of the Mars Society. He also serves Kepler Space University and Kepler Space Institute as Chief Scientist.

**Bill Cress** is a senior professional engineer highly experienced in commercial building and real estate development, with \$700+ million worth of construction & development under his belt during his career.

His is a licensed ham radio operator (General Class, handle = KC2ZPZ) and member of: American Disk Jockey Association, American Radio Relay League. His is also a board member of Icarus Interstellar, chair of their Funding Committee, and member of the British Interplanetary Society. He is also a professional photographer, short film producer, lecturer on photography and a disc jockey.

**Paul Gilster** is a fulltime journalist and author residing in Raleigh, NC, who focuses on space technology and its implications. He is one of the founders of the Tau Zero Foundation and now serves as its lead journalist. Created by Marc Millis, this organization grew out of work begun in NASA's Breakthrough Propulsion Physics program, and now seeks philanthropic funding to support research into advanced propulsion concepts for deep space missions. He tracks developments in interstellar research from propulsion to exoplanet studies on his Centauri Dreams Web site ( [www.centauri-dreams.org](http://www.centauri-dreams.org) ). Gilster is the author of seven books, notably among them, *Centauri Dreams: Imagining and Planning for Interstellar Flight* (Copernicus, 2004), a study of the technologies that may one day make it possible to send a probe to the nearest star. He says, "I have no idea whether people will ever travel between the stars or not, but I'm becoming convinced that robotic probes to explore nearby systems are foreseeable. ... I don't think we'll see a robotic interstellar probe until late in this century, if then, but that doesn't matter. ... Building a star-faring craft is something like building a cathedral: it will take the combined efforts of scientists and engineers through several generations to make it happen. The most optimistic mission scenarios take almost fifty years to reach Alpha Centauri, and many concepts take centuries to get there, meaning each generation of scientists will be handing the probe off to the next. Nursing the kind of long-term thinking that might build an interstellar probe — and the cultural imperative of passing along things of value to the future — is a key theme in all my work."

**John Preston** graduated Georgia Tech in 1968 with degree in Ceramic Engineering. At McDonnell Douglas, St. Louis, from '68 to '72 he supported the F-4, DC-10, and lastly Space Shuttle tile programs. Materials Engineer in ceramic capacitor industry from 1972 to 1977. Worked at K-25 (Oak Ridge Gaseous Diffusion Plant), a nuclear fuel enrichment facility, now being demolished, in various capacities from 1977 until retirement in 2012. John continues yeoman work as ORION's & TVIW's tireless videographer. A lifelong technophile / master of communications-media, this activity seems to suit him.

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#### Attendee List

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Reginald Alexander	Richard Altstatt	Richard 'Timmy' Bolgeo
Robert L. Bolgeo	Bill Case	Jason Cassibry
Patricia Copeland	Stephen Covey	Bill Cress

Avery Davis	Jan Davis	Gerald W. Driggers
Tony Ewing	<b>*David Fields</b>	Linda Fippin
Stephen Fleming	Regina Garson	Paul Gilster
Lorraine Glynn	John Gunning	Robert E. Hampson
Andreas Hein	Amy L. Herring	David Hewitt
James R. Hopkins	Eric Hughes	Al Jackson
Carol Johnson	<b>*Les Johnson</b>	Mark Johnson
Michael R. Johnson	Bryan Jones	<b>*Robert G. Kennedy</b>
Ed Kiker	Jordan King	<b>*Martha Knowles</b>
Michael LaPointe	Greg Laue	Bart Leahy
Bill Ledbetter	Robert Lightfoot	<b>*Yohon Lo</b>
Kelvin Long	Nels Long	Diana Lucas
Jessica Lucas	William Lucas	Richard Lucas
Claudio Maccone	John Mannone	James Maxwell
Mike Mongo	Jim Moore	James Morman
Richard Obousy	<b>*Stephanie Osborn</b>	<b>*John Preston</b>
Tony Robertson	C. Gwyn Rosaire IV	<b>*Ken Roy</b>
Paul Sample	Amy Sivak	Fred Sloop
Virden Spicer	Rob Swinney	Travis Taylor
Dean Thornton	Toni Weisskopf	John Wharton
Jeff. Wicker, M.D.	Gordon Woodcock	<b>*Jim Woosely</b>

\*Denotes a **member** of the organizing committee



#### Directions from Holiday Inn to Nexolve:

1. Take the West HWY 72 EXIT from the Mall. It is the first stop sign when leaving the hotel.
2. Stay on the left hand lane and go under the overpass.
3. Turn LEFT on to ENTERPRISE WAY at the 3<sup>rd</sup> traffic light. This intersection has a Five Guys Burger and IHOP on the SW corner, a Shell Station on the NW corner, and Phil Sandvol and Ted's BBQ on the SE corner. Drive for 0.6 miles.
4. Turn LEFT onto DISCOVERY DRIVE. Drive for 0.4 miles. # 655 is right after the slight right bend. There is a tall U.S. Flag in the front (See photo) and the building has the words "Gray Research" and "Nexolve" underneath it.



#### Directions from Holiday Inn to Edgewater Community Club:

1. Take the West HWY 72 EXIT from the Mall. It is the first stop sign when leaving the hotel.
2. Stay on the left hand lane and go under the overpass.
3. Turn LEFT at the traffic light immediately after the overpass. The sign will say "South 255" to "I-65."
4. Stay on 255 SOUTH / RESEARCH PARK BLVD, and take the "West 565, To-I-65, Airport, Decatur" EXIT.
5. Stay on the ON RAMP and to the RIGHT. The EXIT to MADISON BLVD is just at the end of the ON RAMP. Take this EXIT and stay on the OFF RAMP.
6. EXIT on MADISON BLVD and turn LEFT at the INTERSECTION of ZIERDT ROAD (to the left) and SHELDON ROAD (to the right). There is a Texaco Station at the NW corner.
7. Stay on ZIERDT ROAD for 1.1 miles and turn RIGHT at the 2<sup>nd</sup> traffic light onto EDGEWATER DR. The Clubhouse is the first left.



- From Nexolve
  - o Exit Nexolve parking lot and turn right on Discovery Dr
  - o Turn right on to Explorer Blvd
    - If you turned the other way, you will end up at Enterprise Way, then just turn left on Enterprise Way, and then left at Explorer Way
  - o Turn Left at Voyager Way (go toward the Westin Hotel)
  - o At the T. Turn Left onto Old Madison Pike (you will see BridgeStreet on your left)
  - o Go about 1.4 miles and turn left at Wynn Drive. Calhoun is on the corner of Wynn Drive and Old Madison Pike. There is a big sign that says Calhoun.
- From Hotel or University Drive (west of Wynn Drive)
  - o Go east on University Drive and Turn right onto Wynn Drive.
  - o Follow Wynn Drive to almost the end. Calhoun is on the right just past Redstone Federal credit union bank.

### **Restaurants Near Holiday Inn Research Park**

There are a lot of restaurants within 2 to 3 miles radius of the hotel. Google Map and Yelp have great listings. Not all restaurants are listed. These are the ones where I would eat or are in a safe neighborhood.

At the Hotel: Hopper's Bar & Grill / Lounge; Breakfast, Lunch, Dinner. Old fashioned American and down home country cooking

Next Door:

- Lone Star Steakhouse

Adjacent to the Hotel (Walking distance)

- Steak'n Shake (Burger and Shake. East of the hotel)
- Romano's Marconi Grill (Italian. East of the hotel. About 2 to 3 min walk)

Across the Parking Lot (Madison Square Mall)

- Buffalo Wild Wings Grill and Bar (south of the hotel, across the parking lot.)
- Food Court:
  - o Cajun Express (mall Asian style food)
  - o China King
  - o Greek Gyro Express
  - o Keetle and Spouts (Southern, burgers)
  - o Malibu Cantina
  - o Sakkio of Japan
  - o Sbarrio the Italian Eatery
  - o Subway

North of the Hotel (Across University Drive - Very Busy Street)

- Chipotle Mexican Grill (Burritos and Tacos - Fast Food)

- Earth Fare Supermarket (they have a Deli / small café there)

East of the Hotel (\* denotes can be walk)

- In the H.H Gregg shopping center (just across the Old Monrovia Road, east of Macaroni Grill)
  - o Taco Bell
  - o Sun Café (Asian, Japanese)
  - o Viet Huong (Vietnamese. Great little mom & pop place)
  - o Krystal
- Casa Blanca Mexican Restaurant\* (North-East corner of University Dr & Old Monrovia)

West of the Hotel (don't recommend walking)

- North side of University Drive (right hand side when driving west) – ordered by distance from hotel
  - o Long Horn Steakhouse
  - o McAlister's Deli (behind Long Horn)
  - o McDonald's
  - o Wendy's
  - o Super Walmart
  - o Telli's Italian fast food
  - o O'Charley's (just past the intersection of University Dr / Enterprise Way)
  - o Tokyo Japanese Steakhouse
  - o Rosie's Mexican Cantina
  - o Logan's Roadhouse (Steak)
- South side of University Drive (left hand side when driving west) – ordered by distance from hotel – In the Burlington Coat Factory shopping center
  - o Zaxby's (chicken)
  - o Panda Express (Asian)
  - o Cheddar's (American)
  - o Phil Sandoval's Mexican Restaurant
  - o Ol Heidelberg Café (German. Really good. Yummy deserts.)
  - o Nothing but Noodles
  - o Subway
  - o 88 Buffet (Chinese)
  - o Ted's BBQ
- South of the Hotel in the Bridgesteet Town Centre (Shopping/Dinning) in the Research Park. Off Research Park Blvd/Old Madison Pike. There is a Westin there.
  - o Westin Hotel restaurant
  - o PF Chang's
  - o Cantina Laredo (Mexican)
  - o Connors Steak & Seafood
  - o Red Robin Burgers
  - o The Melting Pot (fondue)
  - o Tommy's Pizza
  - o Scene Restaurant and Lounge (Inside Monaco Pictures Theater)



- o Watercress (Upscale southern cuisine)
- o Lime Fresh (Tex-Mex fast food)

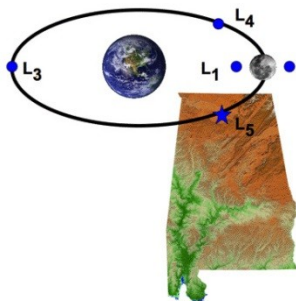
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Technology for Today & Tomorrow



## Huntsville Alabama L5 Society (HAL5)

A Chapter of the National Space Society