

MARSHALL STAR

Serving the Marshall Space Flight Center Community

July 24, 2003

Supporting the vision ...

New Marshall Deputy Director Rex Geveden ready to help shape Center's future

by Jonathan Baggs

Amid the farm fields of Western Kentucky, in the summer before he started eighth grade, Rex Geveden read a book on Einstein's theories that propelled him into physics studies and eventually landed him in the deputy director's chair at the Marshall Center.

On Tuesday, Marshall Director David King hosted a "Center Director's Update" and formally introduced Geveden as Marshall's new deputy director.

"I felt like we needed someone with experience in the science field ... and I wanted somebody specifically from Marshall," King told Center team members in Morris Auditorium.

Geveden said reading about Einstein's theories lit a spark in his mind. "I was interested in how things worked, with how the universe was created, and that led to my future academic interests."

Geveden earned a bachelor's degree in

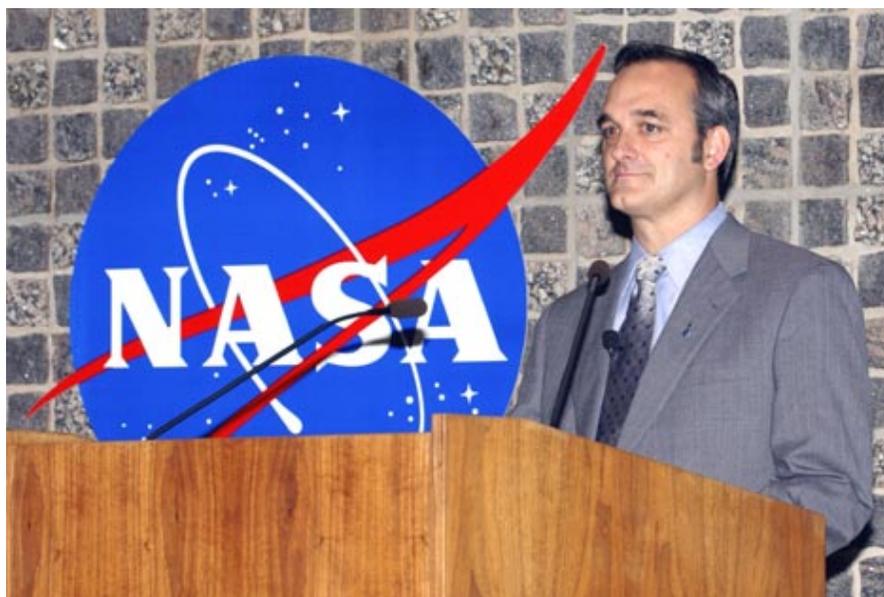


Photo by Terry Leibold, NASA/Marshall Center

Marshall Deputy Director Rex Geveden addresses Marshall team members Tuesday.

engineering physics and a master's degree in physics from Murray State University in Kentucky. He currently is pursuing doctoral studies in materials engineering at Auburn University in Alabama.

Geveden came to Marshall in 1990 to work in the Chief Engineer's Office. Since 1996, he's been leading the Gravity Probe-B team – a 40-plus year project to build

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Gravity Probe-B spacecraft arrives at Vandenberg launch site

by Sherrie Super

The NASA spacecraft designed to test two important predictions of Albert Einstein's theory of general relativity has been shipped from the Lockheed Martin Space Systems Facility in Sunnyvale, Calif., to the launch site at Vandenberg Air Force Base, Calif., having completed environmental testing.

See *Gravity Probe-B* on page 3

NASA experiments validate 50-year-old hypothesis

Research challenges theories about how crystals form

by Tracy McMahan

NASA-funded researchers recently obtained the first complete proof of a 50-year-old hypothesis explaining how liquid metals resist turning into solids.

The research is featured on the cover of the July issue of "Physics Today." It challenges theories about how crystals form by a process called nucleation — important in everything from

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Geveden

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and launch a spacecraft and payload to test two features of Einstein's general relativity theory. Launch is scheduled for November 2003. He also was named deputy director of the Science Directorate in 2002.

Supporting the vision

Geveden said he believes his background in science and program and project management will complement King's background in human space flight.

"I see my role in fairly simple terms – two basic components – to support David King in implementing Marshall's part of the Agency's strategic plan ... and support Dave's vision for the Marshall Center," Geveden said. "That vision is to return to flight successfully, execute our programs and projects effectively and build our future – not only through projects and programs but by being competitive in

other areas as well."

Geveden said being competitive includes building Marshall's science and in-space propulsion capabilities as well as capabilities in any other area necessary – to run Marshall as a business and base decisions on strategic planning.

"Dave has asked me to support Return to Flight and to be heavily involved in '(project) execution' and in 'creating our future,'" Geveden said. "Don't be surprised to see me showing up at your monthly and quarterly reviews. I plan to be very involved in project execution."

Flight safety also is going to be a focus, Geveden said. He recently returned from a trip to Kennedy Space Center where the Columbia debris is being studied. "It's a tough thing, looking at that debris," he said. "It makes you realize how concrete the issues of flight safety can be. That's really where it hit home."

Leadership approach

Geveden said he intends to lead by example. "And my example is hard work, treat people fairly, communicate and be inclusive."

Part of Geveden's leadership style is to build trust through open communication, be responsible for his actions and ask others to be responsible and deliver on their promises. He said he has high standards of performance and approaches his duties with energy and enthusiasm.

"I love Mondays," Geveden said. "But, I also like Friday afternoons as well. I absolutely love my work. I'm truly honored and humbled to be offered this opportunity."

The writer, employed by ASRI, is the editor of the Marshall Star.



Photo by Dennis Olive, NASA/Marshall Center

Getting 'SHARP' about the space program

Students participating in the residential NASA Summer High School Apprenticeship Research Program (SHARP) tour the East Test Area last week at the Marshall Center. SHARP is an intensive science and engineering apprenticeship program designed to increase, strengthen and diversify the pool of students for mathematics, science and engineering college majors and careers. These students are participating in the program through the Georgia Institute of Technology in Atlanta.

Gravity Probe-B

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NASA's Gravity Probe B mission, also known as GP-B, will use four ultra-precise gyroscopes to test Einstein's theory that space and time are distorted by the presence of massive objects. To accomplish this, the mission will measure two factors — how space and time are warped by the presence of the Earth, and how the Earth's rotation drags space-time around with it.

Stanford University in Stanford, Calif., and Lockheed Martin performed the testing. Shipped by road transport, the vehicle arrived July 10 at Vandenberg for pre-launch operations in anticipation of a launch in late 2003.

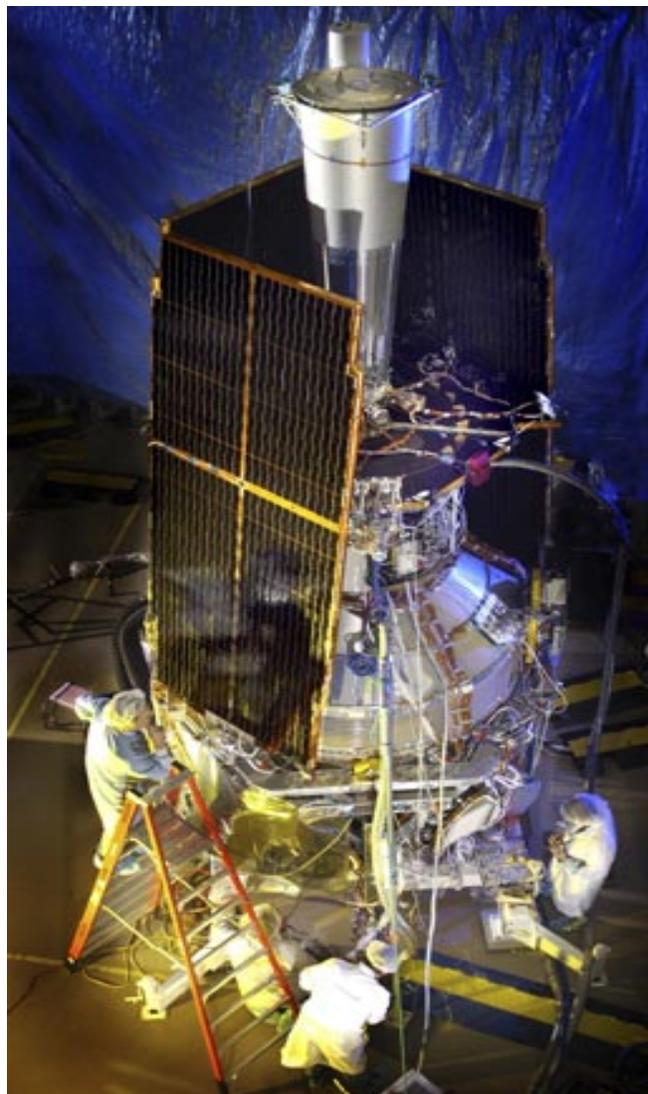
The Marshall Center manages the GP-B program. NASA's prime contractor for the mission, Stanford University, conceived the experiment and is responsible for the design and integration of the science instrument, as well as for mission operations and data analysis. Lockheed Martin, a major subcontractor, designed, integrated and tested the spacecraft and some of its major payload components.

The erection of the Boeing Delta II launch vehicle's first stage at Space Launch Complex 2 (SLC-2) at Vandenberg Air Force Base is scheduled to begin Sept. 15. Attachment of the nine strap-on solid rocket boosters is scheduled to occur in sets of three Sept. 16 - 18. The second stage is planned for mating atop the first stage Sept. 19. Gravity Probe B will be transported from the spacecraft hangar to SLC-2 on Oct. 29 and hoisted atop the second stage. The Delta II fairing will be installed around the spacecraft on Nov. 5 as part of final pre-launch preparations.

Kennedy Space Center in Florida will manage the launch.

For more information on the Gravity Probe B mission, go to <http://einstein.stanford.edu/> or <http://www.gravityprobeb.com>.

The writer, employed by ASRI, supports the Media Relations Department.



Marshall Imaging Services

Gravity Probe-B is readied by technicians for its journey to test two of Einstein's theories of general relativity.

Experiments

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materials to biological systems.

Nucleation is everywhere," said Dr. Kenneth Kelton, the physics professor who leads a research team from Washington University in St. Louis. "It's the major way physical systems change from one phase to another. The better we understand it, the better we can tailor the properties of materials to meet specific needs," he said.

Using the Electrostatic Levitator at the Marshall Center, Kelton's team proved the hypothesis by focusing on the "nucleation barrier." German physicist Gabriel D. Fahrenheit, while working on his tempera-

ture scale, first observed the barrier in the 1700s. When he cooled water below freezing, it didn't immediately turn into ice but lingered as a liquid in a super-cooled state. That's because it took a while for all the atoms to do an atomic "shuffle" arranging in patterns to form ice crystals.

In 1950, Dr. David Turnbull and Dr. Robert Cech, researchers at the General Electric Company in Schenectady, N.Y., showed liquid metals also resist turning into solids. In 1952, physicist Dr. Charles Frank, of the University of Bristol in England, explained this "undercooling"

behavior as a fundamental mismatch in the way atoms arrange themselves in the liquid and solid phases. Atoms in a liquid metal are put together into the form of an icosahedron, a pattern with 20 triangular faces that can't be arranged to form a regular crystal.

"The metal doesn't change to a solid instantly, because it costs energy for the atoms to move from the icosahedral formation in the liquid to a new pattern that results in a regular crystal structure in the solid metal," Kelton said. "It's like being in a valley and having to climb over

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NASA Explorer Schools program takes off

Marshall Center partners with schools to inspire next generation

NASA Headquarters release

NASA launched a major new education initiative in June — the NASA Explorer Schools Program — that will send the nation's science and mathematics teachers "back to school."

The teachers will visit NASA Centers in the summer to acquire new teaching resources and technology tools using NASA's unique content, experts and other resources — to make learning science, mathematics and technology more appealing to students.

As part of the program, the Marshall Center has established a three-year partnership with the Phenix, City, Ala., Intermediate School, as well as with schools in Bolivar, Tenn., Belle Chasse, La., Hot Springs, Ark., and Sioux Rapids, Iowa.

NASA Associate Administrator for Education Dr. Adena Williams Loston formally announced the first 50 competitively selected NASA Explorer Schools at a conference hosted by the International Society for Technology in Education (ISTE).

"NASA's mission is to inspire the next generation of explorers by helping to make learning science and math more fun," Loston said. "The NASA Explorer Schools Program will provide us with yet another promising avenue to positively and uniquely impact science and math instruction in the nation's classrooms as only NASA can."

The initiative, sponsored by the NASA Education Enterprise in collaboration with the National Science Teachers Association (NSTA), establishes a three-year partnership between NASA and 50 NASA Explorer Schools teams, consisting of teachers and education administrators from diverse communities across the country. During the commitment period, NASA will invite teams to NASA Centers in an effort to spark innovative science and mathematics instruction directed specifically at students in grades 5 through 8.

The 50 selected school teams represent 30 states. Eighty percent of the schools are located in high poverty areas, with 75



Educators from Phenix City, Ala., sign a Memorandum of Understanding on Tuesday to partner with the Marshall Center for the NASA Explorer Schools Program. Seated, from left, are April Harrell and Marshall Associate Director Axel Roth. Looking on, from left, are Joseph Blevins, Shirley Garrett, Robin Thomas and Carolyn Kimball.

Photo by David Higginbotham, NASA/Marshall Center

percent representing predominantly minority communities. Fifty-eight percent of the competitively selected school teams are located in both high poverty and high minority districts.

ISTE, based in Eugene, Ore., is a non-profit professional organization with a worldwide membership of leaders and potential leaders in educational technology. ISTE's mission is to provide leadership and service to improve teaching and learning by advancing the effective use of technology in K-12 education and teacher education.

For a list of NASA's first 50 Explorer Schools, go to <http://explorerschools.nasa.gov/>.

High school teachers from across nation study past, present, future of rocketry at Marshall Center

by Grant Thompson

High school teachers from across the country hope their visit to the Marshall Center last week will help launch new ideas about using rocketry in their classroom curriculum.

The 20 teachers participated in NASA's Student Launch Initiative Rocketry Workshop at the Marshall Center July 17-18.

The Student Launch Initiative, an educational program based at the Marshall Center, seeks to motivate students to pursue careers in science, math and engineering. It lets teams of high school students experience hands-on, practical aerospace and engineering projects similar to what they would find in a professional environment.

Workshop participants included teacher-sponsors from the top 25 teams in the Team America Rocketry Challenge, held in The Plains, Va., in May 2003. During the competition, 101 high school student teams from 36 states and the District of Columbia designed, built and tested model rockets that could soar to an



Photos by Emmett Given, NASA/Marshall Center

Teachers attending the NASA Student Launch Initiative Rocketry Workshop prepare to launch model rockets.

target altitude of 1,500 feet, carrying a payload - cargo carried inside the rocket - of two fresh eggs.

During the two-day rocketry workshop, teachers learned more rocketry from NASA engineers and historians. Educators attended lectures about the Marshall Center's historic role in space rocketry and propulsion, its role in supporting current space flight technology research, and NASA's plans for the future of space propulsion and travel.

Other events included tours of Marshall facilities, a question-and-answers session with

Marshall Center Director David King, and a reception with Huntsville author Homer Hickam, who penned the rocketry-themed 1999 bestseller "Rocket Boys," and Dr. Ernst Stuhlinger, a member of Dr. Wernher Von Braun's original German rocket team.

"We are very excited about the opportunity to host such a diverse group of teachers," said Jim Pruitt, manager of the Marshall Education Programs Department. "The workshop allows educators to brainstorm about ways to better serve their students. We hope the lessons learned will help students recognize the importance of math and science in their educational careers."

For more information about the Student Launch Initiative or the Team America Rocket Challenge, go to <http://www.rocketcontest.org> or <http://education.msfc.nasa.gov/sli>.

The writer, employed by ASRI, supports the Media Relations Department.



Dr. Ernst Stuhlinger talks about the importance of teachers in his life during a reception honoring educators attending the NASA Student Launch Initiative Rocketry Workshop at the Marshall Center last week. Stuhlinger was a member of Dr. Wernher von Braun's original German rocket team.

39th Joint Propulsion Conference a success

More than 2,500 leading space propulsion engineers, scientists and administrators came to Huntsville this week for the 39th Joint Propulsion Conference.

Hosted by the Marshall Center and the American Institute of Aeronautics and Astronautics, the three-day event kicked off Sunday with a reception in the lobby of the South Hall of the Von Braun Center. The event is organized by AIAA, the American Society of Mechanical Engineers, the Society of Automotive Engineers and the American Society of Engineering Education.

The event featured technical workshops, sessions on fostering international cooperation in space travel, and the use of nuclear and electric propulsion for long-term space travel.



Exhibits on future space technologies at the 39th Joint Propulsion Conference at the Von Braun Center.

Photos by Doug Stoffler, NASA/Marshall Center



Attendees register for the conference.



Marshall Assistant Director and Chief Engineer for Space Propulsion Robert Sackheim, left, attended the Joint Propulsion Conference as "Robert Goddard," the father of modern rocket propulsion. Sackheim also was the technical co-chair for the conference. With Sackheim, from left, are Huntsville Mayor Loretta Spencer, and Marshall's Michael McLean as Orville Wright and Patrick Karigan as Wilbur Wright.



Next Generation Launch Technology exhibits along with Space Shuttle and Orbital Space Plane technologies on display during the conference.



A replica of the Goddard Rocket draws the interest of conference participants.

One step closer to next-generation space flight

RS-84 engine passes preliminary design milestone

by Rick Smith

The kerosene-fueled RS-84 engine, one of several technologies competing to power NASA's next generation of launch vehicles, has successfully completed its preliminary design review.

The RS-84 is a reusable, liquid booster engine that will deliver a thrust level of 1 million pounds of force. The Rocketdyne Propulsion & Power Division of the Boeing Company, in Canoga Park, Calif., is developing the design of the prototype engine for NASA's Next Generation Launch Technology Program.

The program, part of NASA's Space Launch Initiative, seeks to develop key space launch technologies — engines and propulsion systems, hardware and integrated launch systems — that will provide the foundation for America's future space fleet.

The preliminary design review is a lengthy technical analysis that evaluates engine design according to stringent system requirements. The review ensures development is on target to meet Next Generation Launch Technology Program goals: improved safety, reliability and cost. The review is conducted when the engine design is approximately 50 percent complete and engine drawings are approximately 10 percent complete.

"We've cleared our first major hurdle and the foundation is set for ensuring delivery of a safe, cost effective engine that will meet the next-generation launch requirements of NASA and the Department of Defense," said Danny Davis, project manager for the RS-84 project at the Marshall Center. "We have a highly experienced team working on this unique design challenge. I am very proud of the creativity offered by Rocketdyne, and of the thorough, constructive analysis provided by NASA's insight team."

The design team's next major program milestone is the "40k" preburner test, a series of test-firings of a nearly full-scale preburner yielding 40,000 pounds of thrust. The test series, which will be conducted at NASA's Stennis Space Center in Bay St. Louis, Miss., is scheduled to be completed in September. The

final RS-84 prototype is expected to begin full-scale test firing by the end of 2007.

The RS-84 is one of two competing efforts now under way to develop an alternative to conventional, hydrogen-fueled engine technologies. The RS-84 is a reusable, staged combustion rocket engine fueled by kerosene — a relatively low-maintenance fuel with high performance and high density, meaning it takes less fuel-tank volume to permit greater propulsive force than other technologies. That benefit translates to more compact engine systems, easier fuel handling and loading on the ground, and

shorter turnaround time between launches. All these gains, in turn, reduce the overall cost of launch operations, making routine space flight cheaper and more attractive to commercial enterprises.

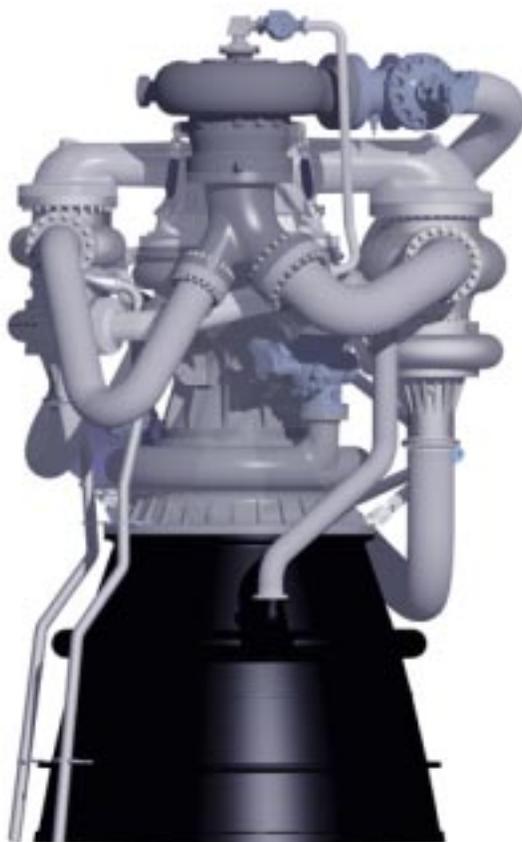
"No engine yet conceived meets the expectations of high reliability, high reusability mission life and responsiveness that is part of the RS-84 design," Davis said. "Our design incorporates the latest in materials development, advanced software to monitor and predict problems, and lessons learned from past engine technology efforts."

"The RS-84 preliminary design was shown to satisfy NASA's goals, supporting an order of magnitude improvement in safety/reliability and operating cost," said Roger Campbell, deputy program manager of Boeing Rocketdyne's RS-84 engine team.

NASA's Next Generation Launch Technology Program is developing and demonstrating innovative

technologies in the areas of propulsion, systems integration and launch operations. The work of the program is intended to yield complete, next-generation space transportation systems that will provide low-cost space access and reinvigorate the U.S. space launch market, enabling stronger competition with international space agencies and private commercial entities, enabling stronger domestic and international competition.

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Fire hose-like jet discovered in action

From the Smithsonian's Chandra X-ray Center

An X-ray movie of the Vela pulsar, made from a series of observations by NASA's Chandra X-ray Observatory, reveals a spectacularly erratic jet that varies in a way never seen before.

The jet of high-energy particles whips about like an untended fire hose at about half the speed of light. This behavior gives scientists new insight into the nature of jets from pulsars and black holes.

Chandra observed the Vela pulsar, a rotating neutron star, 13 times between January 2000 and August 2002. These observations, which were designed to study the nature of the outflow of matter and antimatter from the pulsar led to the discovery that an outer jet of particles was bending and moving sideways at phenomenal speeds.

"This jet is half a light year in length, and is shooting out ahead of the moving pulsar," said George Pavlov of Pennsylvania State University in University Park, Penn., lead author of a paper in the July 10th issue of "The Astrophysical Journal."

The most striking thing about this jet is how rapidly it changes both its shape and brightness," Pavlov said. "Such strong, fast variability has never been observed in astrophysical jets."

The time-lapse movie shows that in a matter of weeks the jet changes from being straight to hook-shaped, while bright blobs move along the jet at about half the speed of light. The jet is composed of extremely high-energy electrons or positrons — an antimatter form of electrons — that are spiraling around a magnetic field. The particles in the jet are created and accelerated by voltages 100 million times that of a lightning bolt. These voltages produced by the combined action of the fast rotation of the neutron star and its intense magnetic field.

Over its entire length, the width of the jet remains approximately constant. This suggests that the jet is confined by magnetic fields generated by electrons flowing along the axis of the jet. Laboratory studies of jets or beams have shown that they can change rapidly due to an effect called the "fire hose instability."

"Imagine a fire hose lying on the ground," said Marcus Teter, also of Penn State and co-author on the paper. "After you turn on the water, you will see different parts of the hose kinking up, and moving rapidly in different directions, pushed by the increased



Photo by Emmett Given, NASA/Marshall Center

Inspecting a space mirror

Charlie Griffith, left, and Mark Young of Marshall's Space Optics Manufacturing and Technology Center, perform a receiving inspection of a Ball Aerospace and Technology Corp. lightweight beryllium mirror. The mirror will undergo a series of rigorous optical performance tests at extreme cryogenic temperatures at Marshall. Testing of an Eastman Kodak lightweight glass mirror was completed earlier this month. The mirrors are being developed under the Advanced Mirror System Demonstrator Program for the James E. Webb Space Telescope. One of the mirrors will be chosen for the telescope, which is named for the NASA administrator during the Apollo lunar program. The telescope will be the successor to the Hubble Space Telescope and is scheduled for launch in 2011.

pressure at the bends in the hose. The Vela jet resembles a hose made of magnetic fields, which confines the electrically charged particles."

The instability could be triggered by the strong headwind created as the pulsar moves through the surrounding gas at a speed of about 200,000 miles per hour. The bright blobs in the jet are thought to be a manifestation of the increased magnetic field and particle pressure at the kinks in the jet.

The observed brightness of the outer jet and the rapid motions of the jet and blobs in it indicate that the bright arcs around the pulsar may not be rings circling its equator, as previously thought. Instead, they may represent shock waves caused by the motion of the inner jet through the cloud of particles around the pulsar.

"The study of pulsar jets is important not only in itself," said Oleg Kargaltsev, a Penn State graduate student and co-investigator, "but it could also help to understand the nature of the enormous jets coming from super massive black holes. Those jets may also vary, but on time scales of millions of years, instead of weeks as in the Vela pulsar jet."

The Marshall Center manages the Chandra program for the Office of Space Science, NASA Headquarters, in Washington. Northrop Grumman of Redondo Beach, Calif., formerly TRW, Inc., was the prime development contractor for the observatory. The Smithsonian Astrophysical Observatory controls science and flight operations from the Chandra X-ray Center in Cambridge, Mass.

Experiments

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a mountain to get to the next valley. You expend energy to get over the barrier to a new place.”

Frank didn't know about quasicrystals, first discovered in 1984, and researchers didn't have tools like NASA's Electrostatic Levitator. Using electrostatic energy to levitate the sample was crucial, because stray contamination from containers causes crystals to form inside liquid metals, which would have ruined Kelton's measurements on pure samples.

To measure atom locations inside a drop of titanium-zirconium-nickel alloy, the levitator was moved to the Advanced Photon Source at Argonne National Laboratory in Chicago. There, an energetic beam of X-rays was used to map the average atom locations as the metal turned from liquid to solid. The experiment was repeated several times, and the data definitively verified Frank's hypothesis.

As the temperature was decreased to solidify the molten sample, an icosahedral local structure developed in the liquid metal. It cost less energy to form the quasicrystal, because it had an icosahedral structure.

This caused the quasicrystal to nucleate first, even though it was less stable than the crystal phase that should have formed. The icosahedral liquid structure was therefore directly linked to the nucleation barrier, as proposed by Frank.

To prepare for an International Space Station experiment, the team is continuing levitator experiments. The new techniques being developed for these studies can be applied to solve advanced materials problems on Earth and for spacecraft applications.



A sample processed in the Electrostatic Levitator facility is examined by Dr. Kenneth Kelton, left, a physicist at Washington University in St. Louis, and Dr. Michael Robinson, a materials scientist at the Marshall Center.

Photo by Doug Stofler, NASA/Marshall Center

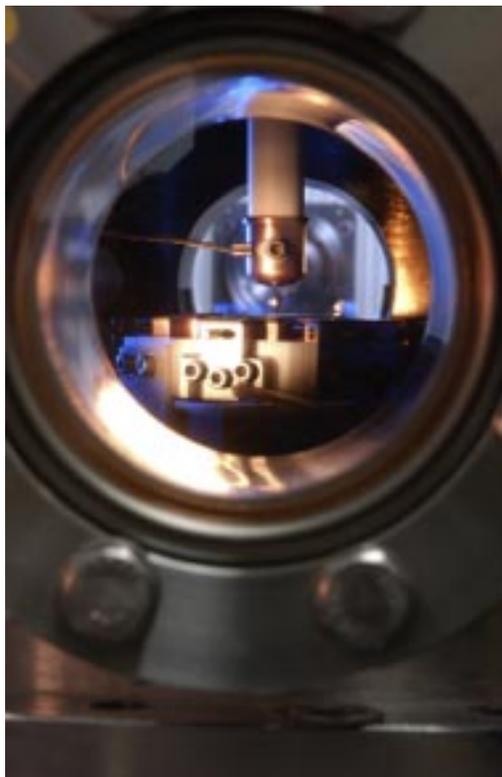
As NASA scientists develop advanced materials for rocket engines and spacecraft, our facility will be a technological tool they can use to characterize materials,” said Dr. Jan Rogers, a Marshall Center scientist who assisted Kelton's research team.

Kelton's team at Washington University included Geun Wu Lee, a graduate student, and Anup Gangopadhyay, a research scientist; Jan Rogers, Tom Rathz and Mike Robinson, all of the Marshall Center; Robert Hyers, University of Massachusetts, Amherst; and Doug Robinson, Ames Laboratory, U.S. Department of Energy, Ames, Iowa.

Kelton conducts his research under NASA's Materials Science Program managed by the Marshall Center. The research is funded by the Physical Science Research Program — part of NASA's Office of Biological and Physical Research in Washington, D.C., the Marshall Center Director's Discretionary Fund and Internal Research and Development funds from the Marshall Center's Science Directorate.

A peer-reviewed article that discusses this work appeared in the May 16 issue of “Physical Review Letters.” The research was featured in the May 30 issue of “Science.”

The writer, an employee of ASRI, supports the Media Relations Department.



A solid metal sample of titanium-zirconium-nickel alloy inside the Electrostatic Levitator at the Marshall Center.

Photo by Emmett Given, NASA/Marshall Center

Job Announcements

MS03C0145, AST, Aerospace Flight Systems. GS-0861-13, 14, Science Directorate, Space Flight Experiments Group-SD21, Science Systems Department. Closes July 24. Contact: Debbie Longeddy at 544-2308.

MS03N0146, AST, Liquid Propulsion Systems. GS0861-13, Space Transportation Directorate, Subsystem & Component Development Department, S&CDD/Functional Design. Closes July 24. Contact: Jim Bramblett at 544-3398.

MS03C0147, Program Analyst. GS-0343-07, Science Directorate, Business Management Office. Closes July 25. Contact: Debbie Longeddy at 544-2308.

MS03C0148, AST, Aerospace Flight Systems. GS-0861-14, Engineering Directorate, Engineering Technology Development Office. Closes July 25. Contact: Rita Evans-McCoy at 544-7507.

MS03N0152, AST, Engineering Project Management. GS-0801-14, Space Transportation Directorate, High Powered Propulsion Systems Office at Jet Propulsion Laboratory in Pasadena, Calif. Closes July 28. Contact: Jim Bramblett at 544-3398.

MS03C0154, Transportation Specialist. GS-2101-11, Center Operations Directorate, Logistics Services Department. Closes Aug. 1. Contact: Dana Blaine at 544-7514.

MS03C0155, Contract Specialist. GS-1102-14, Procurement Office. Closes July 29. Contact: Allan Day at 544-4079.

MS03C0157, AST, Experimental Facilities Development. GS-0801-14, Center Operations Directorate, Facilities Engineering Department. Closes July 28. Contact: Dana Blaine at 544-7514.

MS03N0159, Program Analyst. GS-0343-12, Space Transportation Directorate, Business and Administrative Office. Closes Aug. 4. Contact: Jim Bramblett at 544-3398.

MS03C0160, Executive Support Assistant. GS-0303-09, Office of the Deputy Director. Closes Aug. 4. Contact: Dana Blaine at 544-7514.

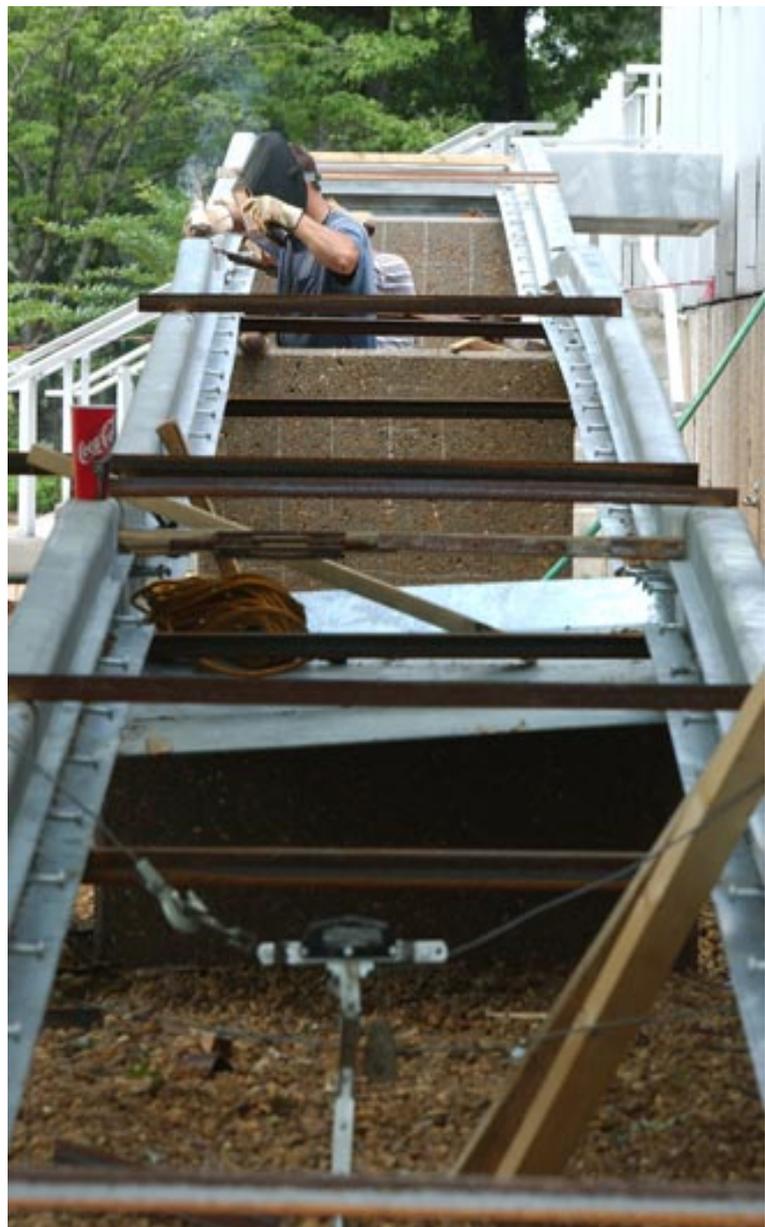


Photo by David Higginbotham, NASA/Marshall Center

Handicap ramp taking shape

Barry Jones welds a section of the new handicap ramp in front of Bldg. 4200. Work began in May and is expected to continue through mid-August. Personnel using transient and visitor parking in the south "Visitors" parking lot should exercise caution while in the area.

MS03N0162, Program Analyst. GS-0343-11, Space Transportation Directorate, Business and Administrative Office. Closes Aug. 5. Contact: Jim Bramblett at 544-3398.

Pipe work to close part of Martin Road on Saturday

Martin Road west at the middle bridge heading toward Gate 7 will be blocked off at 6 a.m. Saturday for underground pipe installation work. Construction should be completed no later than 6 p.m. Drivers should take an alternate route to avoid the area.

Center Announcements

Chandra X-ray Observatory Symposium set for September

The Chandra X-ray Observatory Program will host a three-day symposium Sept. 16-18 at the Huntsville Marriott. For more information, go to <http://mi.msfc.nasa.gov/chandra/index.html> or call 544-5468 or 544-0570.

Marshall Association scholarship applications due July 31

The Marshall Association will award two college scholarships to dependents of Marshall employees or retirees in August. A technical and a non-technical scholarship will be awarded to incoming September freshmen. The association will accept applications until July 31. To receive or submit an application form, call Cliff Bailey at 544-5482.

Disabilities awareness training mandatory for Center employees

Disabilities Awareness Online Training is a mandatory course for all Marshall civil service employees. The course is designed to heighten awareness and knowledge of regulatory requirements under the Rehabilitation Act and to help employees understand special needs of disabled co-workers. The training must be completed by July 31 and is available at <https://solar.msfc.nasa.gov>. After accessing the SOLAR Web site, click on "Training Disciplines" and then go to "Human Resources."

Marshall Retirees Association offering university scholarship

Students who are direct descendants of a Marshall Center retiree can apply for the NASA-MSFC Retirees Association Scholarship at the University of Alabama in Huntsville. The \$1,000 scholarship will be awarded for the academic year beginning in the fall. For more information, call UAH Financial Services at 824-2755.

Marshall Child Development Center accepting applications

The Marshall Child Development Center is accepting applications for

its waiting list. Eligible children include those of NASA employees, retired NASA employees, NASA contractors and grandchildren of NASA employees. A \$15 fee is charged to be placed on the waiting list. The center accepts children aged 6 weeks-5 years or until entering kindergarten. Operating hours are 6:45 a.m.-5:45 p.m. weekdays. For more information, go to <http://mcdc.msfc.nasa.gov> or call Kelli Brott at 544-8609.

HOPE Place golf tournament will be Aug. 23

The HOPE Place Classic golf tournament to benefit victims of domestic violence will be at 8 a.m. Aug. 23 at both the Highland and River golf courses at Hampton Cove. Cost is \$150 per player for the four-person scramble tournament or \$600 per team. For more information, call Sharon Tyson at 885-1739.

Shuttle Buddies meet Monday

The Shuttle Buddies will meet at 8:30 a.m. Monday at the Clock Towers restaurant on South Memorial Parkway in Huntsville. For more information, call Deemer Self at 881-7757.

Honor Award ceremonies set for Tuesday

The annual Honor Award ceremonies will be Tuesday in Morris Auditorium. Lynn Cline, deputy associate administrator for the Office of Space Flight at NASA Headquarters, and Marshall Director David King, will present the awards to team members who have made significant contributions to the space program. Agency awards will be presented at 10 a.m. Marshall awards will be presented at 2 p.m.

PEP survey is mandatory for Marshall team members

All on-site Marshall team members are required to complete the annual Performance Evaluation Profile survey by July 31. Before taking the survey, read the overview and complete the training module on Marshall's Safety, Health and

Environmental program elements at https://msfcsma3.msfc.nasa.gov/she/pep/int_she.htm. Obtain a control ID number from your designated organizational representative and go to <http://pep.nasa.gov/> to complete the survey. For assistance, call Kristie French at 544-7474.

NASA Ski Week set for January 2004

The 13th annual NASA Ski Week will be in Steamboat, Colo., Jan. 24-31, 2004. Skiers from nine NASA centers will participate in winter sports and camaraderie at the 3,000-acre resort. All Marshall team members, retirees and family members, are eligible to participate. For more information, call 233-0705 or e-mail tom.dollman@nasa.gov.

MARS Tennis Club tournament results announced

Winners of the MARS Tennis Club tournaments held in June and July were recently announced. The June Open Mixed Doubles winners were: Amelia O'Neil and Lou Bowick, first place; Ronda Moyers and John Lindley, second place; and Fran Malone and Jody Brenner, third place. The July winners of the Closed Hi-Lo Doubles tournament were: Phillip Boswell and Ronda Moyers, first place; Lou Bowick and Phil Hays, second place; and Brian Meade and Bruce Guy, third place.

Proposal production assistance available

The Center Operations Directorate's Proposal Production Team (PPT) is available for assistance in preparing proposals. The PPT can schedule coordination, guidelines, text editing, figure and table production, layout, camera-ready art and coordinate printed products. For more information, go to <http://co.msfc.nasa.gov/ad03/graphics/proposal.html> or call 544-4852, 544-4580 or 544-4741. The PPT is in Bldg. 4200, Room G-28. To submit a Service Request, go to "One-Stop-Shop" on "Inside Marshall."

Classified Ads

Miscellaneous

- ★ Three boxes Toys-R-Us diapers, size 2, 116 count, \$8 per box, all for \$21. 851-7406
- ★ Cherry acoustic guitar, parlor size, Art by Lutherie by Seagull, padded gig bag, \$200. 256-852-7633
- ★ Five green Dansk glass candle holders. 882-6832
- ★ AKC Registered Siberian Husky female puppy, first shots, \$400. 256-509-3208
- ★ Mongoose bicycle, 26", 21-speed, \$110. 931-438-2625
- ★ Queen-size bed comforter, taupe, brocade leaf design, w/pillow shams, bed skirt, 1-year old, \$40. 890-0755
- ★ Nikon N90S camera body, \$350. 256-772-3227
- ★ 2000 Suzuki motorcycle, 1200 Bandit, burgundy, low mileage, \$4,775. 509-8999
- ★ Motorola V60 CdMA digital wireless phone w/accessories, Version network capable, many options, best offer. 776-8785
- ★ Full-size mattress, box springs and frame, 1-year old, \$75. 828-0756
- ★ Antique Walnut dining room suite: six chairs, buffet, china cabinet, \$800. 837-5113
- ★ Nokia 3560 phone, accessories, 2-months old, in box \$100; Motorola phone, accessories, boxed, \$40. 880-4015/656-2509
- ★ Yamaha snare drum w/practice pad & hard carrying case, \$290. 468-3803
- ★ Infant carrier/rocking cradle, \$15; Cosco toddlers car seat, \$15. 461-8369
- ★ PSE Whitetail Extreme hunting bow, 60-70 lb., 30" draw, bare w/no accessories installed. 723-3803/572-3567
- ★ 1976 Bayliner, 18' ski boat, 140HP Mercruiser I/O, Easy Trail trailer, needs work, \$1,100. 883-9339
- ★ 2003 Yamaha Kodiack, 4x4, wrench, 765 miles, \$4,800. 256-777-6288/732-3427
- ★ McGregor golf bag, black vinyl w/silver trim, \$30. 533-4824
- ★ Whirlpool Plus 7 super capacity washer, 2-speed, and large capacity, 4-temp. dryer, \$275 pair. 883-1779
- ★ GE drop-in range, \$100; Longaberger doll

- cradle, \$75. 828-8005
- ★ Bose Wave radio w/o CD, \$250. 881-0755
- ★ Fertilizer drop feeder, \$15; Propane bottle, filled, 20 lb., \$28; Large dog carrier, \$45. 828-6213
- ★ N64 games: Wave Race, Rush, NFL Blitz, Supercross, Madden, Extreme G, \$10 each, all \$50. 533-5942
- ★ 1985 Bayliner fiberglass ski boat, trailer and 50HP outboard, motor needs work, \$675. 683-9364
- ★ 1979 Honda XR 500, off-road motorcycle, needs starter & top end work, \$350. 230-2521
- ★ Delta radial arm saw, extension table, new blade, Dado blade, extras and supplies, \$375. 519-2492
- ★ 1970 Vintage Bear Recurve bow w/sight, arrow case, \$125. 830-1060
- ★ Sleeper sofa, floral pattern, \$300; coffee table, \$100. 772-7845
- ★ Exercise equipment, "Body by Jake" Bun & Thigh Master, \$45. 256-586-7181
- ★ Kitchenaid dishwasher, white, front that can be changed to any color, \$50. 881-2069
- ★ Challenger Space Shuttle children's play tent from 1986. In box, never used. \$80. 306-0700

Vehicles

- ★ 1995 GMC truck, \$6,500. 837-2223
- ★ 2000 Nissan Frontier crew-cab, auto, PW/PL, 79K miles, silver, bedliner, tilt, cruise, \$12,500. 880-9025
- ★ 1993 Mustang convertible, 4-cyl., auto, A/C, \$3,300. 883-1211
- ★ 1979 CJ5 Jeep, V6, rebuilt, restored, new paint, top, tires, & interior, \$4,500. 256-764-9083/766-2211
- ★ 1996 Ford Contour 93K miles, 4-door, automatic, one-owner, \$3,000. 461-9861
- ★ 1998 Buick Park Avenue, V6, fully loaded, 28K miles, \$15,500. 883-6496/683-7015
- ★ 1994 Ford Ranger XLT, ext.-cab, 4.0L/V6, 5-speed, a/c, 165K miles, one-owner, \$3,950. 883-1874
- ★ 1997 Dodge Intrepid ES, red w/gray interior, loaded, sunroof, tinted glass, 122K miles, \$4,950. 971-0707

- ★ 2000 Mazda 626, 4-door, 41K miles, silver w/gray interior, PS/PB/PW/PL, AM/FM/CD cassette, a/c, \$9,950. 256-230-0806
- ★ 1995 Ford Explorer, Eddie Bauer, leather, 4-wheel ABS, alloy wheels, CD-Alpine, privacy glass, \$6,185. 880-6563
- ★ 1995 Dodge Caravan SE, automatic, 162K miles, blue w/gray interior, V6, \$2,500. 256-880-3337
- ★ 1995 GMC Z-71 Serria, garage kept. 931-937-6518
- ★ 2003 Mercury Grand Marquis LS, Ultimate Edition, heated seats, leather, 1,600 miles, consider trade. 852-6952
- ★ 1998 Ford Ranger XLT, 4-cyl., auto, 67K miles, \$4,950 firm. 256-753-2278
- ★ 2001 Isuzu Rodeo LSE, 2WD, all-power, leather, loaded, 42K miles, \$14,000. 256-829-1296
- ★ 1998 Honda Civic, dark green, 70K miles, power windows/doors, keyless entry, CD, \$9,500. 509-6590
- ★ 1996 Toyota 4-Runner, auto, 4-cyl., 2WD, CD/stereo, a/c, 130K miles, beige interior/exterior, \$5,000. 880-9025
- ★ 1992 Honda Accord LX, 4-door, 89K miles, auto, \$3,750. 325-6000
- ★ 1998 Z71 Chevrolet 1500, standard cab, two-tone, 85K miles, \$13,200. 852-9617
- ★ 1999 Ford Ranger XLT Sport, supercab, 4-door, 6-cyl., CD, cruise, PW/PL, bed cap, \$8,300. 859-0729

Wanted

- ★ Jeep Scrambler, any model, running or not. 256-572-1011
- ★ Queen or full-size mattresses, top and bottom, dresser, dining table w/chairs. 656-7349
- ★ Refrigerator and cook stove, good condition, at reasonable price. 931-703-5956/Cell
- ★ "Saturn Illustrated Chronology," MSFC MHR-5, in good condition. 922-1424

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