

Eastern Caribbean Intellectual Adventure

Bright Horizons 6™

December 5th – 12th, 2009

SCIENTIFIC AMERICAN TRAVEL



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Refresh your science spirit with the vitality of intelligent conversation, the balance of conceptual and practical, and the energy of striving towards new horizons. Join Scientific American on Bright Horizons 6 cruise conference on Holland America's Eurodam, December 5–12, 2009. Expert knowledge, lush Caribbean islands, recreation and reflection await you.

Update your cosmology knowledge with Dr. Lawrence Krauss, as he analyzes which cosmology ideas and theories are holding up over time, which have changed, and which suggest the future form of the universe. Tune in to astronaut Dr. Guy Bluford and learn first hand about Space Shuttle and International Space Station missions. Rendezvous with Dr. Jim Bell and make a deep impact on your knowledge of Near Earth Asteroids and planetary geology. Think green and dig in to a hot topic with Dr. David Blackwell, geothermal energy maven. Sit with immunologist Dr. Noah Isakov and get the latest thinking in allergy, immunobiology, and the origins of cancer.

Take home keys to understanding pressing topics in green energy, medicine, and space science. Savor the moment with a friend on an uncrowded Grand Turk beach or a Virgin Islands rainforest hike. Get all the details at InSightCruises.com/SciAm-6, or call Neil at (650) 787-5665 and effortlessly arrange to stimulate your brain with Scientific American Travel!



Bright Horizons #2 [December 2008] is proof of what value was added by your planning for our pleasure. Organization is not our greatest talent. We have been on three previous cruises, but the package you provided is by far the best. Bright Horizons #2 was a delightfully totally new experience. We were never bored! As a retired Professor of Astrophysics, I was thrilled to be able to learn of the latest results in Cosmology. All the lectures were great and your choice of speakers and subjects is to be praised. At this time we cannot commit to another major excursion, but we can assure you that InSightCruises.com has moved to the head of our list.

Thank you!!!
Larry & Kathlyn Auer



PLUS ... join
Lawrence Krauss, Ph.D.
author, *The Physics of Star Trek*,
for an informal Q&A.

ASTROPHYSICS & COSMOLOGY

Einstein's Biggest Blunder — A Cosmic Mystery Story

Speaker: Lawrence Krauss, Ph.D.

Recent discoveries have implications for our understanding both of the future of our universe and life within it and for our understanding of fundamental physics. Join Dr. Krauss as he covers the fate of the Milky Way, what lies beyond the event horizon, and cosmic phenomena of the next 100 billion years.

The Undiscovered Country

We humans have undoubtedly questioned the origins of the cosmos for as long as we've walked the Earth but we've made spectacular progress in recent years. This progress forces us to discard much of what cosmology textbooks told us up until quite recently. Get the latest on competing ideas, their implications, and how they can be experimentally tested.

An Atom From Boston

Standing somewhere between natural history and biography, Dr. Krauss lays out the life history of an single atom from the beginning of the universe to the end. Life is a journey, and this atom's journey runs from nuclear physics to chemistry to cosmology, with passages through geology and biology along the way. Whether you are an atom aficionado, or more a "universe in a grain of sand" type, sit with Dr. Krauss for a refreshing look at an atom.

IMMUNOLOGY

The Many Facets of the Allergic Responses

Speaker: Noah Isakov, Ph.D.

Many faceted if not many splended, allergic phenomena have increased in prevalence over the past several decades. Join Dr. Isakov for the latest thought on:

- Allergens, asthma and other types of immune-mediated responses
- Effector mechanisms in allergic responses
- Approaches for prevention and treatment of allergy

Immune Mediated Responses: A Double-Edged Sword

While scientific speculation about the immune system dates back to the Plague of Athens in 430BCE, the discipline of immunobiology defined itself in the 19th and 20th centuries. Refresh your picture of the immune system with Dr. Isakov, starting with discussions of:

- Introduction to immunobiology
- Basic concepts of the immune system
- Failure of host defense mechanisms

Monoclonal Antibodies and Cancer Immunotherapy

Take a look under the hood of contemporary immunotherapy. From molecular biology to medicine, monoclonal antibodies are a valuable part of the scientist's toolkit. From his view deep in the trenches of immunobiology, Dr. Isakov will offer:

- An overview of antibody molecules
- A guide to the production of monoclonal antibodies with specificity against a predetermined pathogen
- The scoop on monoclonal antibody use in research, diagnosis, and therapy

Understanding the Roots of Cancer

Dr. Isakov will orient you to the evolving views of the genesis of cancer. Internal and external factors, oncogenes, tumor suppressor genes, cell transformation, immunosurveillance, immunoeediting, and immunotherapy are all part of the mix. Learn:

- What causes normal cells to become cancerous
- How cancer cells from a primary tumor form metastases in remote organs
- Immune-mediated approaches for the treatment of cancer diseases

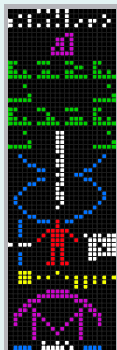
ARECIBO OBSERVATORY: A BEHIND-THE-SCENES TOUR

Explore the contributions and potential of radio astronomy at the celebrated Arecibo Observatory. Get an unparalleled behind-the-scenes tour of the iconic facility, and absorb an in-depth look at the unique contributions derived from Arecibo research and development.

Join us as we wind through the rainforest-blanketed karst terrain of Northern Puerto Rico. We'll get a sense of the massive physical scope of the Arecibo radio telescope. We'll boldly go where ordinary visitors are not permitted. NAIC scientists will update us about the radio astronomy, planetary radar discoveries, and climatology research at the observatory. From the monitoring of near-earth objects to cosmology, astrophysics, and global warming research, you'll gain insight into the vital activities at Arecibo.

Optional eight-hour tour includes transportation, entrance fees, and a private luncheon at the Arecibo Observatory (\$175).

Transmission of the Arecibo message to star cluster M13 in 1974 marked the remodeling of the telescope we'll be visiting. The 73 row by 23 column message depicts numbers, aspects of DNA, graphic depictions of humans, the solar system, and the Arecibo telescope.



I thoroughly enjoyed the Bright Horizons #2 cruise and must confess that the content of the cruise and the speakers far exceeded my expectations. Of the 26 excellent lectures, and I didn't miss a single one, I found each one equally as challenging and informative as the next. You and Randal did a magnificent job of attending to every detail and I only heard compliments of the highest order from every guest. I hope to join you on a future event cruise, so please keep me on your email list.

Perry Walton

Cruise prices vary from \$799 for an Inside to \$2,999 for a Full Suite, per person. (Cruise pricing is subject to change.) For those attending the conference, there is a \$1,375 fee. Taxes and gratuities are approximately \$150.

GEOLOGY

Geology and Plate Tectonics of Europe
Speaker: David D. Blackwell, Ph.D.

Take a guided tour of the European area of the vast Eurasian tectonic plate. From topology to geology to tectonics, you'll get a picture of the forces that created Europe, and continue to shape it today.

Basins, plains, volcanoes, and mountain ranges have stories to tell. Survey the terrain with Dr. Blackwell.

Future of Energy — Geothermal as a Major Player

Any time zettajoules (10 superscript 21) enter the conversation about alternative energies, you know the potential for the resource is great. Dr. Blackwell will lay out the factors in play in a look at the practical future of geothermal energy. Raw and practical potential, inventory of accessible energy, environmental impact, and competitive position are some of the facets in the discussion. Geothermal economics are on the agenda, too: Short and long term investment and implications, direct and indirect costs, and domestic and imported sources.

Plate Tectonics

Glide into an updated understanding of plate tectonics. Join Dr. Blackwell for a discussion of the development of the theory, its key principles, and its consequences. You'll learn about physical properties of the dynamic lithosphere, atmosphere, and mantle layers versus chemical layers of the earth, driving forces of plate movement, and the relationship of plate boundaries to geological events such as earthquakes and the creation of topographic features like mountains, volcanoes, and oceanic trenches.

Intro to Geothermal Energy

Get in on the ground floor of geothermal energy. Dr. Blackwell will cover the natural foundations of this alternative energy resource. You'll deepen your understanding of the origin of the earth's heat, the role of plate boundaries, spreading centers and hot spots, mechanisms of tapping geothermal, and the risks and benefits, advantages, and disadvantages of tapping this resource.

We have just returned from the Bright Horizons #2 cruise and want to commend you and your staff for putting together an absolutely first rate combination of cruise line, destinations, program and speakers. We were particularly impressed with Max Tegmark, both as a lecturer and as a person. Please convey our gratitude to all the speakers.

Thanks again for a perfect cruise. Let us know what else you are planning.

Dick and Elizabeth Santoro

THE SPACE PROGRAM

The Future of the Space Program
Speaker: Guion S. Bluford, Jr., Ph.D.

Travel back to the future with an in-depth discussion on the future of the NASA Space Program. Dr. Bluford will address the issues and opportunities ahead as space exploration matures. You'll get the big picture of the Constellation Program (with its Aries, Orion, and Altair components) which will return humans to the moon and later take them to Mars. Come away with the insights and views on what lies ahead from Dr. Bluford, astronaut and aeronautical engineer.

The International Space Station

Join Dr. Bluford for a comprehensive survey of the International Space Station (ISS) Program. He will orient us to the history and complexities of this permanent human presence in space. From project inception to launch to ongoing development and daily living, pick up a new understanding of the logistics, function, and significance of the ISS.

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An Evening with Shuttle Astronaut Dr. Bluford

How has aeronautics affected society and vice versa? Having worked in space, what open questions does Dr. Bluford have about space exploration, and space? What are the core characteristics and qualities shared by astronauts i.e., what is "the right stuff"? Dr. Bluford will present food for thought arising from his experience in space (688 hours), in jet cockpits (5,200 hours), and in the field of aeronautical engineering. We'll have an out-of-this-world round of astronaut Q&A, too!

The Space Shuttle Program

Countdown to contemporary treasure — a first-hand account of life in space. Dr. Guion Bluford, a veteran of four Space Transportation System (STS) missions (STS 8, STS 61-A, STS 39, and STS 53) will present a look at the Space Shuttle Program, from its inception to the wrap up of its service in 2010. Learn about training for shuttle duty, noteworthy aspects of daily routine in space on the Discovery and Challenger, and gain a behind the scenes look at the science and technology projects executed by Shuttle astronauts.

PLANETARY SCIENCE & SOLAR SYSTEMS

Postcards from Mars
Speaker: Jim Bell, Ph.D.

The NASA Mars Exploration Rovers Spirit and Opportunity landed on the Red Planet in January 2004, and have been driving, photographing, and analyzing their landing sites for the past five years. Prof. Bell has been the lead scientist in charge of the rovers' Panoramic Camera imaging system since the rovers were "born" nearly a decade ago. Come along for an amazing journey of geologic exploration and learn about the ways that both rovers have been utilized to discover convincing evidence that Mars was once warmer, wetter, and much more Earthlike than it is today.

Studying the Solar System in 3-D

Don your red-blue glasses and join planetary imaging expert Prof. Jim Bell on a voyage of 3-D discovery of the solar system. Stereo pictures of Mars, the Moon, Saturn, asteroids, comets, and other places taken by astronauts and robotic space probes provide new details about the geology and history of our planetary neighbors. Learn about the ways that 3-D images are taken, and the ways that they are used by scientists and engineers involved in space exploration. Viewing the solar system in 3-D is the next best thing to being there!

Impact!

The solar system is teeming with millions of asteroids and comets, and occasionally they crash into the planets with catastrophic consequences. Planetary scientist Jim Bell leads a discussion about the science fact and science fiction of the role of such impacts in shaping the geology and biology of our home world. Earth has been hit in the past, with severe consequences for life on our planet. Will Earth be hit again in the future? Almost certainly. Unlike any previous species in history, however, we have the chance to understand the threat ahead of time and, perhaps, to prevent a planetary-scale catastrophe.

Searching for Life in the Solar System and Beyond

Are we alone? The search for habitable environments and for life on other worlds is a major driving force for the exploration of the solar system. Join Prof. Bell as we explore the short list of worlds around us that may once have been (and perhaps still are, in places) habitable: Mars, Jupiter's moon Europa, Saturn's moons Titan and Enceladus, and perhaps other places as well. During the last decade scientists have also discovered an amazing diversity of life on our own planet, thriving in what were once considered hostile conditions. And during the same time, astronomers have discovered hundreds of planets orbiting other Sun-like stars, and some of them may be habitable as well. It's an incredible time to search for life in the solar system and beyond!

