

Bright Horizons 7™

May 29 – June 5, 2010

Canada and
New England

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SCIENTIFIC AMERICAN TRAVEL

Partake of intellectual adventure in the company of experts and fellow citizens of science. Join Scientific American Travel on a cruise down the mighty St. Lawrence Seaway into the heart of contemporary cosmology, genetics, and astronautics. Black holes parallel universes, and the Big Bang itself are among the abstract ports of call Dr. Max Tegmark shows us. You'll have a new perspective on the significance of food choices after indulging in a discussion with Dr. Paul Rozin. Satisfy your curiosity about navigating space, from the science behind solar sails to mapping the Interplanetary Superhighway, with Dr. Kathleen Howell. Maneuver through the newly charted territory of the human genome, genetic medicine, genetic agriculture, and all their nuances and consequences with Dr. David Sadava. Set the scene for Summer on the Bright Horizons 7 conference on Holland America Line's m.s. Maasdam, sailing Montreal to Boston May 29-June 5, 2010.

Cap your Bright Horizons experience with an optional, incomparable, behind-the-scenes tour of the Massachusetts Institute of Technology with MIT insider Dr. Max Tegmark as your guide. Campus, research facilities, and lunch at the MIT Museum are on the itinerary. ▼

Discover the pleasures of dynamic and interactive science learning in Canada's historic and hospitable Atlantic provinces, and bring back your own True North story. Hike Springtime Quebec with a friend. Hear Celtic echoes in the Nova Scotia breeze. Visit www.insightcruises.com/SciAm-8 or call Neil or Theresa at (650) 787-5665 to get all the details, and then journey with Scientific American and a thinking community on Bright Horizons.

How Did It All Begin — Or Did It? How Will It All End?

Although we humans have undoubtedly asked these questions for as long as we've walked the Earth, we've made spectacular progress on them in recent years, forcing 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.

Questions, I've Got Questions: Black Holes Edition

Take a look at some of the most spectacular recent evidence that black holes really exist. Dr. Tegmark will cover what we know about them and what remains mysterious. Are black holes in fact crucial to enable galaxies to form? Can black holes form new universes in their interiors? Plus, using a fully general-relativistic flight simulator, you'll take a scenic orbit of the monster black hole at the center of our Galaxy and discuss how one could actually make this dizzying journey with only modest energy expenditure.

A Brief History of Our Universe

With a cosmic flight simulator, we'll take a scenic journey through space and time. After exploring our local Galactic neighborhood, we'll travel back 13.7 billion years to explore the Big Bang itself and how state-of-the-art measurements are transforming our understanding of our cosmic origin and ultimate fate.

Mission Design: Exploring the Solar System

Scientific mysteries and huge surprises await all of us space explorers, whether we're viewing Earth from the perspective of space or seeking out our neighbors, that is, the planets, dwarf planets, moons, asteroids, and comets that populate the solar system. But how do we get there? How do we get a spacecraft where we want it to go? What about power? How do we address the demands of the space environment? Dr. Howell will lay out the principles and process of designing a space mission. Get the scoop on the successful engineering techniques and some of the challenges in getting humans and robots to space destinations.

Solar Sailing

Nearly 400 years ago, Johannes Kepler observed that the tails of comets are sometimes blown about what he considered to be a solar "breeze." Kepler suggested that perhaps ships could move through space using large sails to capture the breeze from the Sun. The concept of practical solar sailing was introduced in the 1920's and serious studies of the idea by engineers began in the 1950's. Solar sails are very thin sheets of reflective material that reflect sunlight — they transfer the momentum of light energy to their spacecraft. This sunlight pressure yields a force that pushes a spacecraft through space, without using any fuel. Solar sails are real! Test sails are being constructed; solar sail capabilities are being analyzed; solar sail mission have been planned. Learn the facts with Dr. Howell.

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Listed is a sampling of the
18 sessions you can participate in
while we're at sea.

Genetic Medicine: Can knowledge of the genome transform medicine?

Your health is determined by both heredity and environment. Beginning in the 1800s, humankind has made great progress in modifying the environment to improve public health. This progress has led to the near-elimination of many infectious diseases in some parts of the world and treatments for other diseases. Dr. Sadava will show you that as we learn more about our heredity through studies of the genome, we can describe what goes wrong in the many diseases that have a genetic component, such as cancer and heart disease. Get a researcher's input on how these descriptions may lead to cures and how information about an individual's genome may lead to personalized treatments.

Cloning and Stem Cells: What are the potential uses of plant, animal and human cloning and what is the reality of stem cell uses?

The biology behind cloning has been known for over a century. The first plant was cloned in the mid-1950s and the first animal several decades later. In this lecture, you will learn how and why these feats were accomplished. Human cloning is now a possibility. The promise of using stem cells to treat diseases and even improve athletic performance in healthy people is a related topic. Delve into the realm of cloning and stem cells with Dr. Sadava. You'll learn of the ethical issues surrounding the use of human embryos to get the cells used, and the ways biologists may circumvent these concerns.

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InSight Cruises
EDUCATION THAT TAKES YOU PLACES

Cruise prices vary from \$999 for a Better Inside to \$3599 for a Full Suite, per person. (Cruise pricing is subject to change. InSight Cruises will generally match the cruise pricing offered at the Holland America website at the time of booking.) For those attending the conference, there is a \$1,275 fee. Taxes and gratuities are \$182.

