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2012 International Chemistry Olympiad

Catalyzer

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July 23, 2012

To Boldly Go on a NASA Goddard Excursion!

NASA's Goddard Space Flight Center is home to the nation's largest organization for the exploration of space. Teams of scientists, engineers and technologists build spacecraft, instruments and new technology to study the Earth, the sun, our solar system, and the universe.

Named for American rocketry pioneer Dr. Robert H. Goddard, the center was established in 1959 as NASA's first space flight complex. Goddard and its several facilities are critical in carrying out NASA's missions of space exploration and scientific discovery.

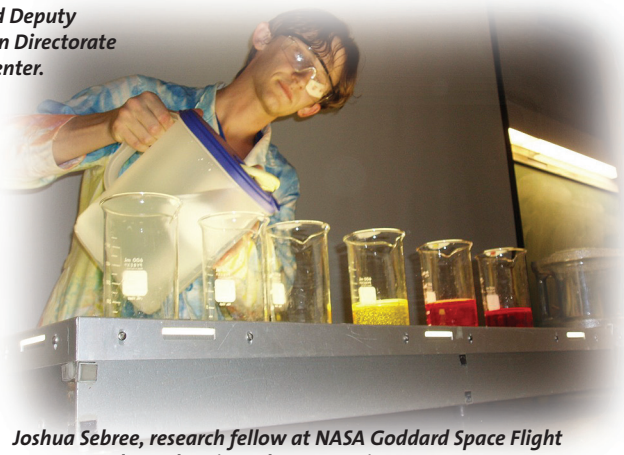
The Visitor Center has many exciting and visually stimulating exhibits describing some of the space exploration programs of the Goddard Space Flight Center. They have interactive displays and models, as well as real examples of satellites and rocket flight hardware. The collection even has a piece of the moon! A new and exciting exhibit called "Science on a Sphere" uses computers and video projectors to display animated data on the outside of a suspended, 6-foot diameter, white sphere. Get ready to go boldly where no Olympiad has gone before!

Piers Sellers, NASA Astronaut and Deputy Director, Sciences and Exploration Directorate at NASA Goddard Space Flight Center.

John Mather, senior astrophysicist, Nobel Prize in Physics laureate and James Webb Space Telescope Project Scientist at NASA Goddard Space Flight Center.

All photos courtesy of NASA

NASA Goddard Space Flight Center



Joshua Sebree, research fellow at NASA Goddard Space Flight Center, conducts chemistry demonstrations.

Celebrating International Excellence in Chemistry

Carbon Fibers: A Vital Material for the Modern World

Carbon fibers stand as one of the most versatile materials in the world today. From iPad covers to aircraft, carbon fibers have proven vital in the modern world.

The modern era of carbon fibers began in the 1950s, when research on the melting point of graphite under high temperatures and pressures led to the discovery of carbon moving straight from the vapor phase to the solid phase.

Roger Bacon, a young American physicist at Union Carbide, demonstrated the first high performance carbon fibers in 1958.

Experimentation in the United States continued using rayon to create fibers, while in the United Kingdom scientists used polyacrylonitrile (PAN) fibers, which eventually became the dominant technology. In either case, the fibers are spun into filaments and then carbonized to produce carbon fiber. The carbon fibers may be further treated to improve their qualities.

Today, the largest consumer of carbon fibers is the aerospace industry. Carbon fiber-based composite materials are used in the fuselage and segments of the wings. Carbon fibers are ideal because of their lightweight qualities and superior strength. They can also be found in the blades of wind turbines and in sports equipment such as skis, tennis rackets, and golf clubs.

Applications for carbon fibers continue to grow. The automotive industry is expected to employ carbon fibers to produce lighter vehicles that will use less fuel compared to vehicles made with traditional materials.

The development of high performance carbon fibers was designated as a National Historic Chemical Landmark at GrafTech International (as Union Carbide's carbon products division is now known) in Parma, Ohio, on September 17, 2003. To date, more than 65 achievements in chemical science and technology in the U.S. and abroad have been recognized by the program. For more information, visit www.acs.org/landmarks.

Sustainability

As part of Dow's business of rearranging atoms and reshaping molecules to create new materials and technologies, our innovations help contribute to a more sustainable world. Our sustainability focus is organized around four pillars: innovations for tomorrow, smart solutions for today, partners for change, and responsible operations.

Dow contributes to the sustainability of society and our planet by developing innovative technologies for today. Unveiled in 2009, Dow Solar manufactures Powerhouse Solar Shingles that function like a standard asphalt shingle while harnessing the power of the sun to offset a portion of a home's energy usage.

Looking ahead, Dow technologies enable our customers, and their customers, to develop products and services for a more sustainable future. As the world continues to evolve, Dow researchers are committed to maintaining a robust innovation pipeline that will provide solutions for future challenges.

Dow is a leader in collaborating with customers, suppliers, communities, civil society and governments to advance sustainability. Perhaps the best example of this is our collaboration with The Nature Conservancy, announced in January 2011, to incorporate nature into Dow's business goals, decisions and strategies.

Dow is committed to ensuring that our infrastructure has a positive impact on our company, our communities and ourselves. To accomplish this, we will continue to make progress toward a vision of no accidents, injuries or harm to the environment.

These pillars are an integral part of Dow's drive for sustainability because they help our employees achieve, customers succeed, consumers live better lives, and communities thrive. Dow is committed to setting a positive example for sustainable practices, and will continue to lead the charge toward a more sustainable world.

DOW®

Photos from the Opening Ceremony and Sightseeing

Photos by Peter Cutts Photography

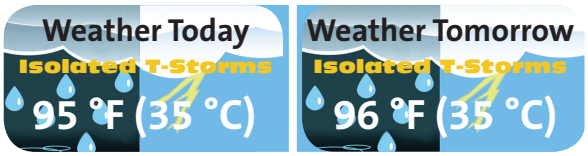
Energy Sources Puzzle Answers

ACROSS: 1.fission 3. fusion 4. hydroelectric 5. renewable

DOWN: 1. fossil fuels 2. solar cell 6. wind

Monday, July 23 Schedule

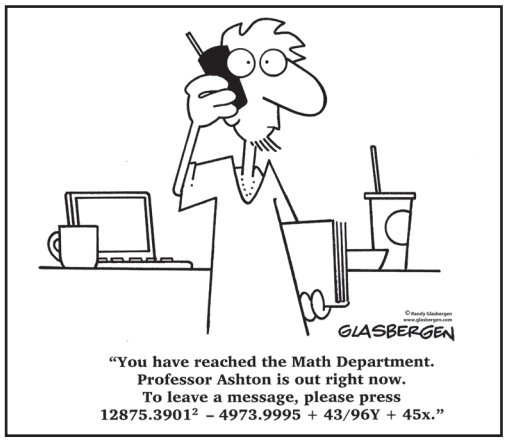
	Students	Mentors and Observers
whole day	NASA Annapolis, MD Tour Dinner, Game Night and Shopping	Translation – Practical Exam



Teams coming to the IChO are encouraged to share their culture with the rest of the world. Team Mexico brought some amazing foods for others to try including **Hot chilis** and **crickets**! Cultural exchange at the International Olympiad is definitely off to a hot start!

Team Mexico

Natalia Tono
Student Guide



"You have reached the Math Department.
Professor Ashton is out right now.
To leave a message, please press
$12875.3901^2 - 4973.9995 + 43/96Y + 45x$."

A Quick Quiz for You: Are you a chemist?

1. What is a mole?

2. Pronounce 'unionized'.

Answers are in issue #5.

Q What was your favorite part of the Opening Ceremony?

A. "I was very inspired by the Nobel Prize winner, Richard Schrock, when he said that he wasn't that interested in winning awards or medals, but was more interested in making contributions to chemistry.

Ivan Kurniawan
Indonesia

Yazan Ghannam
Syria, July 23

HAppY BiRtHDay!

2000 B.C., Egypt
The first toothpaste mentioned in recorded history was devised by Egyptian physicians about four thousand years ago. Highly abrasive and puckeringly pungent, it was made from powdered pumice stone and strong wine vinegar and brushed on with a chew stick.

SUPPORTERS

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On the cover masthead: *NASA space shuttle prepares for launch.*

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