

## THE GATEWAY

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## colophon

The Gateway is created using Macintosh computers, Umax PowerLook 1000 flatbed scanners, and a Nikon Super Cool Scan optical film scanner. Adobe InDesign is used for layout. Adobe Illustrator is used for vector images, while Adobe Photoshop is used for raster images. Adobe Acrobat is used to create PDF files which are burned directly to plates to be mounted on the printing press. Text is set in a variety of sizes, styles, and weights of FENICE, Joanna, Kepler and Whitney. The Manitoban is the Gateway's sister paper, and we love her dearly, though "not in that way." The Gateway's games of choice are Pacman and Super Mario World.

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## Speakers from NASA land at U of A

## Space symposium kicked off by exploring new ways to enhance and improve space explorations

DEREK LARSON  
News Writer

From Canadian space exploration to the aurora and dancing hair cells, the Engineering Teaching and Learning Complex (ETLC) Solarium was host to a number of talks during the first day of the University of Alberta Space Exploration Symposium 2006 last Wednesday.

The Symposium started with Dr Andy Greenshaw, Associate Vice-President (Research) at the U of A, giving the opening talk.

Wednesday was undoubtedly the physics portion of the Symposium, and many of the talks involved research into the enigmatic behavior of the upper atmosphere.

Among the topics discussed were auroras, and the process of our magnetic field interacting with the solar magnetic field that creates the coloured lights.

"[Like] what you see when you stir your double-double from Tim Hortons," said one of speakers, research associate Jonathan Rae.

But there are also poorly understood and potentially harmful processes going on, symposium-goers heard, such as the Van Allan Radiation Belts that surround our planet, and protects Earth from radiation from the Sun.

And to understand the reason behind that and other mysteries in the upper reaches of our planet, Mann explained, the U of A is leading an initiative in partnership with the Canadian Space Agency, NASA, as well as other academic institutions to launch the Outer Radiation Belt Injection, Transport, Acceleration, and Loss Satellite (ORBITALS) Small Satellite Mission. Tentatively set to launch in 2012, the scientific satellite will gather much needed data about near-Earth space, not only to further research here, but around the world.

Dr Richard D Boyle, electrophysiologist and the director of the Bio-Visualization, Imaging and Simulation (BioVIS) Technology Center at the NASA Ames Research Center, provided a shift in focus for the keynote address, discussing research into biological adaptations to microgravity.

His studies, done both in space and at the Ames Research Centre, involve study of hairs of the inner ear, those that are responsible for orientation and balance in all animals. In a video clip he even showed one microscopic hair—which responds to electrical current—moving to the beat of *Rocking Around the Clock*, which was being electrically transferred to it.

"The hope is to develop a strategy for countermeasures so that one could intervene if needed to help the nervous system readapt more quickly, back to a new gravitational state. So that if you were to land on Mars, you would be pretty soon ready to go. If you're incapacitated or you feel really lousy, it's going to affect the mission," Boyle said in an earlier interview.

**"The hope is to develop a strategy for countermeasures so that one could intervene if needed to help the nervous system readapt more quickly, back to a new gravitational state. So that if you were to land on Mars, you would be pretty soon ready to go."**

DR RICHARD D BOYLE  
NASA ELECTROPHYSIOLOGIST

"Doing space experiments is extremely difficult," related Boyle, speaking of the hurdles involved with merging science with space exploration. "You want to keep the experiment just as simple as possible."

The symposium ran from 26-27 September. While the first day dealt with a wide variety of physics research and concerns, the second day focused on the planet Mars. For coverage of the second day of the symposium, see the adjacent article.

## Day two keynote speaker outlines status of continuing search for signs of alien life on Mars

KARI CHAN  
News Writer

The question of life on Mars is still very much on the minds of researchers from the University of Alberta, who hosted a series of seminars last Thursday on the red planet, in what was the second day of the U of A Space Exploration Symposium.

University students and faculty from all disciplines were invited to share their thoughts on everything from fire protection clothing technology to Martian meteorites. However, the main focus of the day was the possibility of life on Mars.

"What we're looking for is the possibility of a second genesis of life. We're looking for a type of life form that's not like us. We're looking for aliens," Dr Chris McKay, the keynote speaker for the night and a researcher for NASA explained, stressing the importance of having diverse life forms available to study.

"If you were doing a senior project on fruit, you would want to compare apples and oranges. [But] if the only fruit you had was oranges, you would be led to mistakenly believe that fruits all look like [oranges]," he explained. "The problem we have with life is that we're trying to understand life at a deep level, and all we have is one example, all we have are oranges. We are looking for something a little different to compare to."

McKay singled out Mars as the place most likely to have evidence of alien life as, in the past, Mars had an atmosphere similar to Earth's.

"There are really three reasons [that Mars is the focus]," McKay explained. "One is direct evidence for past liquid water. Look at life on Earth: the common ecological requirement for life is liquid water. That is the most important fact we know about Mars. Mars has an atmosphere with carbon dioxide and nitrogen, key elements required for life, and in a practical sense, Mars is a good place to preserve evidence of life."

The next step, McKay added, would be to find a life form on Mars.

"A lot of the focus of Mars exploration is to go search for a fossil, but

remember, we're looking for a second genesis of life and a fossil would not be enough. A fossil will tell us that there was life on Mars, but they wouldn't tell us the nature of that life or its relationship to life on Earth. We're looking for life that isn't related to us," McKay clarified.

McKay believes that the chance of finding a life form would be greatest under the ice of Mars. Such an experiment would require digging under the surface of Mars, triggering concerns about contamination.

"The issue that comes up is ... [humans] will contaminate Mars before we have a chance to determine if it has life ... [but] in a sense, it's too late. We know that the Spirit Rover had 100 000 bacteria on it," McKay acknowledged. However, while he noted it may sounds significant, it's actually remarkably clean considering a single gram of dirt contains approximately 10 billion bacteria.

"The good news is that Mars is a very lethal environment and it's not easy to contaminate. The bugs on the Rover that were exposed to the Martian environment are dead. [The] environment is not suitable for growth of any Earth organisms ... the only contamination that remains on Mars is organisms inside the metal ... sitting there dormant. That means that the possibility exist that we could decontaminate Mars," McKay explained.

It's also possible he continued, that Martian life forms are related to life on Earth. Meteors are proof that material can be exchanged between the two planets.

"Meteorites [that land on Earth] can tell us of the conditions that exist on Mars," said Dr Chris Herd, a professor at the U of A Earth and Atmospheric Science department.

If indeed Mars doesn't offer proof of a second genesis, McKay said that there are other places in the solar system that might offer evidence of life.

"The hit list for me is Mars [then] Europa which is a moon of Jupiter and more recently Enceladus, one of the moons of Saturn," McKay said.

There are currently five missions operating on Mars, with the sixth, the Mars Phoenix, set to launch in 2007.

## STREETERS

The Liberal leadership race is on!

Based on sexual appeal and hypothetical bedroom prowess, who do you think would be the best leader of the Liberal party?



Chris Hsin  
Business IV



Amanda Fyfe  
Education IV



Marjorie Konrad  
Phys Ed I



Marc Laponte  
Phys Ed I

I'm a fan of Bob Rae, because he's got nice eyes, nice hair ... he's got a cute pout.

Bob Rae screwed Ontario, so that's a reason why he would definitely not be a good lover.

Maybe him, Gerard Kennedy. He looks the youngest; he probably has the most stamina and endurance out of all of them.

I'd say him [pointing to picture of Gerard Kennedy], just cause of the way he's looking, and the whole French thing.