Users of Myrias systems — chemists, business analysts, professionals, biologists, astronomers, physicists, engineers, mathematicians — have demonstrated overwhelmingly that Myrias has solved the problem of making high-performance computing easy to program. And they are continually finding new applications for Myrias machines that no one had foreseen. They have converted programs from other computers in mere hours, and run them efficiently on systems ranging from 64 processors to the large system unveiled today. The ease of use and unlimited capacity of the Myrias technology have caused users to classify the Myrias as the first in a new category of tools for computational science.

Myrias Research Corporation was founded in Edmonton in 1983 and has been financed by a $35-million mix of private, federal and provincial government funds. Recently, Myrias opened a wholly owned U.S. subsidiary — Myrias Computer Corporation — in Boston. The subsidiary is responsible for worldwide sales, marketing and technical support of Myrias products.

New Window on the Universe

The Canadian government has recently given the go ahead to one of the most ambitious scientific experiments ever conducted in Canada. It's called the ''SNO'' project — which stands for Sudbury Neutrino Observatory. Some say it could unlock the secret of how the universe will end.

The Sudbury Neutrino Observatory will be located more than 2 km below the earth's surface, deep in the rock of the Canadian Shield near Sudbury, Ontario, where a team of scientists from Canada, the United States and Britain will study the elusive particles known as neutrinos. Many believe that the team's findings will profoundly alter present theories about solar energy production and lead to fundamental advances in theories that explain how the basic forces of nature work.

INCO's Creighton Mine will be home to the new Sudbury Neutrino Observatory.

Neutrinos are tiny, subatomic particles that are born in the nuclear fires at the centre of the sun and in remote exploding stars. They can also penetrate virtually all types of matter. Most neutrinos, for instance, would emerge unscathed after travelling through a wall of lead one light-year thick.

Neutrinos stream out of the sun's core at the speed of light. Because they reach the earth in minutes (compared to the thousands of years it takes other particles to escape from the sun), neutrinos hold the key to understanding exactly what is happening at the sun's core.

Scientists believe neutrinos fill the universe. But, the problem is that they are hard to see. Neutrinos, in fact, are the closest thing to nothing that exists, and scientists, as a result, know very little about their detailed properties.

But five years from now, the Sudbury Neutrino Observatory will be home for the best neutrino detector ever devised. Some of the most sophisticated scientific equipment in the world, coupled with a giant tank of heavy water, will catch about one out of every thousand quadrillion neutrinos. That's about one neutrino per hour.

Although neutrinos from the sun have been studied previously at two neutrino observatories in the United States and Japan, these experiments were not sensitive enough to provide definitive answers to key scientific questions. The Sudbury Neutrino Observatory will be at least 10 times more powerful than any existing detector and superior to any that has been built elsewhere.

The key to the Sudbury Observatory is the availability of pure heavy water. No other country in the world has available reserves of large amounts of non-radioactive heavy water sufficient for a neutrino observatory. Heavy water is the ideal medium for detecting neutrinos because all three types of neutrinos react with it. About 10 000 neutrinos per year are expected to interact with the nuclei of atoms in the 1 000 t of heavy water in the observatory's giant acrylic container. This is 50 times the rate that neutrinos can be observed in the best existing detectors.

One question scientists will be attempting to answer is whether neutrinos have a mass. And if they do, this could have major implications for the future of the universe. Neutrinos are thought to be the most abundant particle that exists. They were produced in enormous quantities when the so-called ''Big Bang'' occurred and the universe was born. But even if each has a tiny mass, scientists theorize that together they could still ''outweigh'' the combined total of all other known forms of matter. Protons, neutrons and electrons — the stuff of rocks, people, planets and stars — could be a minority component of a universe dominated by neutrinos.

Scientists also believe that there could be enough gravitational attraction caused by neutrinos to slow the expansion of the universe and cause a collapse into a ''big crunch'' — the opposite of the Big Bang — billions of years in the future. The Sudbury Neutrino Observatory will have enough sensitivity to determine what influence neutrinos will have on the fate of the universe.