

## Leading Edge: New Tech

This year's **Leading Edge** is a series of presentations on ideas and trends that impact the future. They include the geophysics of plate tectonics and earthquakes, green energies such as hydro power, transportation systems run by remote control, additive 3D manufacturing and robotic human parts.

### November 2: Alternative Rapid Transit

Increased urban density requires efficient high capacity transit systems. However there has always been a conflict between the freedom of a car and a public transit system with the people who are used to driving anywhere they want being unhappily limited when traveling on a transit system. But alternatives are on the way, and Bruce Watt, retired architect and the facilitator of Leading Edge will show transportation systems such as self operated cars and Personal Rapid Transit systems, being developed to keep people happy as they travel in tight formation to their destinations.

### November 9: Robotics

Robotics are increasingly everywhere, from the robotic equipment that does all manner of manufacturing, from making microscopic electronic parts to assembling cars, all the way to those human-like robots in Japan that look after seniors. SOC Robotics of North Vancouver is involved in making robotic limbs for those who have lost theirs. Stephen Swift, President, will make a presentation on the devices they have developed and the work they have done on projects with SFU and other groups.

### November 16: Fighting Climate Change with Hydro Power

Climate change has become a major issue with the increase of carbon dioxide in the atmosphere due to the burning of fossil fuels. One major alternative energy source is hydro power of which BC has plenty at a reasonable price. However there are issues and Kelvin Ketchum, P.Eng recently retired as a manager at BC Hydro will discuss the hydro network, reservoir management, and the impact of the *Columbia River Treaty* on the future use and power production of the Columbia River basin.

### **November 23: 3-D Printing**

The first printing machines right through to the first printers run by computers pressed stamps through inked ribbons onto paper. Then there was Xerox, that developed a system where a special drum, electrically patterned, attracted a black powder to the pattern which was subsequently fused onto paper; commonplace laser printers still do this. But printers do much more.

Presented by John Biehler, a specialist in the field of 3-D printing, who advocates for increased and expanded use of this incredible technology. John will have samples of equipment and products to showcase.

### **November 30: Fuel Cells For Cars**

While there is much publicity in the introduction of cars that are electrically powered using batteries or batteries plus a small gasoline powered engine, coming in the near future will be cars powered by fuel cells. Fuel cells are a modern technology using catalysts that are able to combine hydrogen gas with oxygen in the air to produce electricity to drive the car with only water as waste. Bill Schatz, a senior engineer from AFCC (Automotive Fuel Cell Cooperation - Mercedes Benz, and Ford) in Burnaby will be discussing how fuel cells work, and their use as a fuel source for cars and as an alternative to the present carbon fueled engine and the battery powered car.

### **December 7: Plate Tectonics**

What causes earthquakes and how do we know generally where they are likely to occur? It's only a few decades ago that scientists were able to deduce the existence of plate tectonics and the energies involved when the plates meet and grind against each other. Don Trotter, a retired geological engineering professor at McGill University will unravel what plate tectonics is and why we can expect more possibly severe earthquakes and tsunamis near Vancouver in the future.