

# SRC Supports Student Innovators

This year, SRC invested in developing Saskatchewan students' innovative capabilities by giving significant support to a program run by ForeFront Design Inc. It enables undergraduate engineering students at the University of Saskatchewan to learn entrepreneurship skills while pursuing their own design projects over the summer.

"By providing opportunities to students, you create a vested interest," says Jason Golding. The recent U of S law and commerce graduate heads up ForeFront and is President of its new spin-off, TMEC (Technology Management and Entrepreneurship Centre). Bernie Zuk, an SRC Industrial Technology Advisor, agrees. "It's a way of encouraging them to develop their ideas here."

According to Golding, TMEC "facilitates interaction between the university resources and people, industry, governments and investors in the form of wealth creation projects." The four projects carried out in 2001 (up from one in 1997) were pilots to see how the TMEC model works.

*(continued on page 2)*

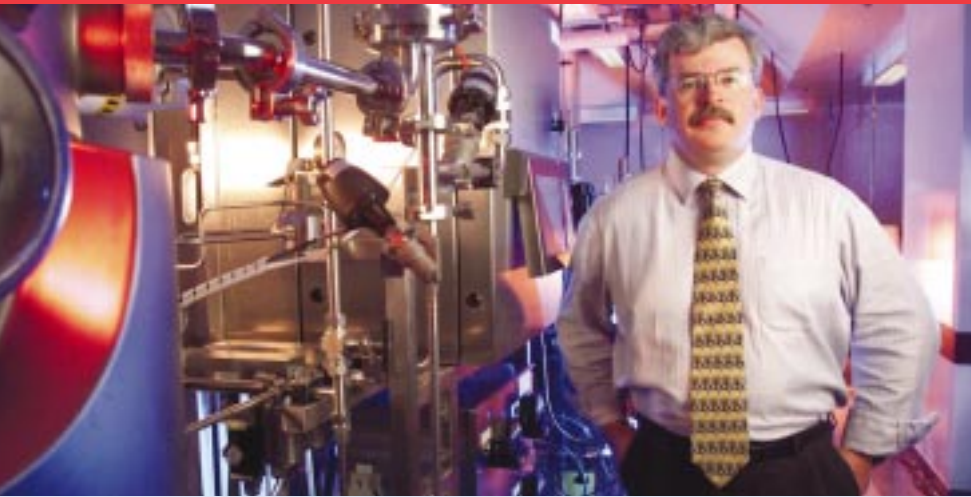
*Project participants from the left are Matthew Crane, Jason Golding (behind), Robert Matheos (in front), Abu Maqsud, Vicky Strasser and Christopher Kasner.*



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## Dr. Laurier Schramm New SRC President, CEO

Dr. Laurier (Laurie) Schramm's outstanding career path has brought him home. The new President and CEO of the Saskatchewan Research Council is back in Saskatoon, where he was born. Not one to sit still for long (just long enough to write another scientific paper) he is already traveling frequently to SRC's offices in Regina, where he spent his later childhood as the son of an RCMP officer.

Laurie Schramm has an intimate knowledge of applied research, academic, and industry environments, and a strong vision of how they can most effectively work together. Most recently he served as Vice-President, Energy Division, Alberta Research Council (ARC). Before that, he was President and CEO of the Petroleum Recovery Institute (PRI), Calgary, responsible for integrating PRI and several other energy-related units into ARC in 2000.

Dr. Schramm began his industrial career in 1980 with Syncrude Canada Ltd.'s research department. With B.Sc and Ph.D degrees in chemistry, from Carleton and Dalhousie Universities, respectively, he is an expert in colloid interface and petroleum science. In 2000, he was honoured by the Canadian Society for Chemistry for developing oil-tolerant foams for enhanced oil recovery. His numerous publications include seven books and several patents, and he is much sought after as a keynote speaker.

In his first few months at SRC, Laurie Schramm has met with a broad cross-section of staff and stakeholders and says "I already knew that we were going to move forward with a wonderfully enthusiastic and committed Board of Directors. Within SRC, I have consistently encountered highly professional, committed people; people who are eager to expand their horizons and foster the kind of innovations that will strongly contribute to growth of the Saskatchewan economy. On the outside, I have consistently encountered receptive potential customers, partners and other stakeholders, and both willingness and desire to work with SRC in every sector. This means we have the makings for some great wins and I'm very excited about our potential."

Laurie Schramm and his wife Ann Marie, a biologist, have been avid fans of the outdoors including hiking, snow-shoeing, skiing, camping, back-packing, mountain climbing, and SCUBA diving. They have two young daughters.

*(Student Innovators story from page 1)*

TMEC stresses the interplay between marketing and technical skills. The design projects are innovative, practical, and geared towards eventual commercialization. "Students can come up with neat ideas," says Golding. "But we need a solid development process to mitigate the risk, and we need to study the commercial and technical feasibility."

In 2001, SRC helped to firm up the process. It paid the students' salaries and operating expenses, and provided office space and expert feedback. Further support came from the U of S and Human Resources Development Canada. "It has been a really great experience," Golding declares. "SRC has been a great contributor to the cause."

### Neat Ideas

Of the four design projects, one (a powerline detection device for cranes, augers, etc.) was initiated by an industry partner, the other three by students. One invention uses sound to diagnose malfunctions in large equipment; the student will continue to hammer it out during his senior year. One student worked on a bovine birth assistance device (a calf-puller-outer), and another tried a few things before settling on a golfball tracking device.

SRC will share in the intellectual property generated through these projects. Zuk says SRC is exploring involvement in the future. "It's an exciting relationship," Golding concludes. "There are benefits to TMEC, and the students can provide benefits to SRC and like corporations. It's a good strategy to retain students, and Saskatchewan can get some good technology development."

# Climate Expert Elected to CFCAS

SRC climatologist Elaine Wheaton has been elected to the Board of Trustees of the Canadian Foundation for Climate and Atmospheric Sciences (CFCAS). The foundation was recently established by the Government of Canada to foster university-led research in these disciplines. As a board member, Wheaton will help to direct the overall operations of CFCAS, which has a budget of \$60 million over 6 years.

Wheaton's expertise in climate-related issues has been recognized throughout Canada and worldwide. She has recently contributed, along with several SRC colleagues, to research supported by the federal government's Climate Change Action Fund. This research has revealed both the likely substantial impact of climate change on diverse sectors in Saskatchewan as well as ways to adapt to the impact. Wheaton also worked as a Review Editor for the most recent assessment of the Intergovernmental panel on Climate Change and is a Board Member of the Canadian Institute for Climate Studies.



Elaine Wheaton

# Hanson Named to Head SRC Board

Mr. Keith Hanson was appointed the new Chair of the Saskatchewan Research Council Board of Directors on September 10, 2001. He brings extensive knowledge of the business sector, the research environment, and corporate governance to the post.

A graduate of the University of Saskatchewan, Mr. Hanson has been involved in building science and the construction industry for 25 years. Through his work, he has pursued a keen interest in energy-efficient, affordable housing and technology transfer. He is President of the Sun Ridge Group, as well as Vice-President of NHF Engineering Ltd. in Saskatoon.



He has served on the boards of many public and private corporations both locally and nationally. His contributions have gained Mr. Hanson an international reputation and put him in constant demand as a speaker and lecturer throughout Canada and abroad.

Mr. Hanson is both excited and optimistic about the part SRC can play, as the province's lead R&D agency, in helping to shape Saskatchewan's future. "We can fulfill the critical role in the 'innovation chain' between the knowledge creators (the universities and fundamental research labs) and the users/implementers of technology, to best meet the needs of the people in Saskatchewan."

Mr. Hanson joined the SRC Board of Directors earlier this year. In assuming his new role, he paid tribute to the outgoing chair, Jim Hutch, who resigned after serving since January 2001. "During this time of transition, Mr. Hutch provided leadership to the Board, recruited new Board members, and assisted in the recruitment of a new president for SRC. Mr. Hutch's dedication ensured all these tasks were carried out with great commitment and conviction to ensure a strong future for SRC."

One of Mr. Hanson's tasks will be to continue recruitment to the Board to ensure strong representation from different communities and sectors of the provincial economy.

# Agroforestry Challenging Old Ideas on Land Use

One legacy of Ross Thatcher's tenure as Premier of Saskatchewan is the many trees he ordered to be planted along the highway between Moose Jaw and Regina to enhance the prairie landscape.

The next 20 years could see many thousand hectares of trees planted in Saskatchewan, not as scenery but as crops.

Agroforestry – the deliberate establishment of trees in agricultural landscapes – is poised to become an economic force in the province. It's a key focus of the new Saskatchewan Forestry Centre, which opened this summer in Prince Albert.

For agroforestry to take off in a big way will take a new way of thinking about land use, says SRC's Dr. Mark Johnston, a Senior Research Scientist specializing in forest ecology and climate change. "It's not agriculture and it's not forestry. It has elements of both, and requires a different set of management skills."

The main economic push for agroforestry is to fill expected gaps in supply to Saskatchewan's rapidly expanding forestry industry. By the end of 2002, the province will have two large oriented strandboard plants, but its natural forests are aging. As well, European markets may be reluctant to accept products harvested from natural forests.



*Alley-cropping provides an opportunity to integrate trees and agriculture crops within a single field.*

There is also an environmental push, since Canada may earn carbon credits, and landowners may earn revenue, by expanding forest carbon sinks.

Johnston foresees landowners entering into long-term contractual arrangements to supply woodfibre to forestry companies or ethanol producers. He adds that financial mechanisms exist to address delayed return on investment while the crop matures.

High-density block plantations, particularly of hybrid poplars, are already being established on marginal agricultural land. Other agroforestry practices include intercropping, in which two or three rows of trees alternate with 20 to 50 metres of crops in an agricultural field. All types of afforestation provide environmental benefits, such as biodiversity conservation and soil stability.

"With intercropping, for example," says Johnston, "there are important interactions between

the crop and the trees. The decomposing leaves have a fertilizing effect which the crop can take advantage of. Excess fertilizer is taken up by the trees, keeping it out of the water draining from the field, thereby increasing water quality. If you do it right, you build a system that's greater than the sum of its parts."

To do agroforestry right, Johnston states, will

require research on questions that are as yet unanswered for the Saskatchewan situation. "What species are synergistic, not competitive? What are the appropriate soil conditions? What will be the impact of large-scale tree planting on local watertables? How will climate change and shifting vegetation zones affect forested areas?"

Johnston sees SRC's job as "taking a lot of the ideas developed by pure science and bringing them to real-world applications." He represents SRC on a multiple-stakeholder team led by Saskatchewan Agriculture and Food that is promoting opportunities in the agroforestry area. Given the provincial government's promotion of forestry expansion and the federal government's interest in carbon sequestration as one way to address Kyoto Protocol requirements, Johnston feels that the opportunities are very bright indeed.

# Inventor's Dream Made Real



*SRC client Kenneth Man displays Ignition Magician™, an anti-theft-device for vehicles.*

Kenneth Man was looking for help. The experienced automotive mechanic and owner of Sunfire Auto Electric in Saskatoon had a great idea for an anti-car-theft gizmo – the Ignition Magician™ – with strong commercial potential. But to turn his design into a device, he needed expertise in product development and manufacturing. He came to SRC.

At SRC, Man says he found “very helpful, friendly, intelligent engineering and technical people.” He appreciated that he felt engaged as part of a team that was interested in developing the technology, not merely in spending Man’s money.

SRC’s Bernie Seymour, a Senior Research Technologist, worked closely with Man. “Mr. Man had put a lot of thought into his conceptualized design,” says Seymour. “We massaged it to make it manufacturable, decided on the materials, and developed a final parts design.” In SRC’s Plastics

Resource Centre, the team developed prototype mold tooling for seven plastics parts, along with low-cost manual tooling for eight high-quality copper alloy contact components.

Man holds Canadian and U.S. patents for the Ignition Magician™, a secondary ignition switch which mounts on or under the car dashboard. The after-market accessory takes over the controls to the column-mounted primary ignition, which in many car models is notoriously easy to break into and hot wire. “This device will definitely discourage thieves while enabling people to leave their vehicles running as they go about their business,” observes Seymour.

A lead selling point of the Ignition Magician™ is that it allows other systems, such as heating, refrigeration, or hydraulic lifts, to keep operating even while the gear shift mechanism and steering wheel are locked up. That makes it particularly useful for commercial, farm, or emergency service vehicles. Man has installed the device in some City of Saskatoon utility trucks and Hertz school buses, as well as other vehicles.

Now Man is concentrating on distribution and marketing, and he continues to find assistance from other SRC staff. “With SRC you have confidence that the people understand what you are doing, that they will do it right for you. And,” he adds, “they are affordable.”

## Top Quality Credentials

SRC’s Terry Bradley was recently certified as a Lead Auditor for the revamped ISO (International Standards Organizations) 9001:2000 quality program. The Senior Technology Management Consultant now holds the most current and relevant quality program credential, to go with his 27 years of working with many quality programs in the manufacturing environment.

Bradley explains that this capability will help clients get ready for ISO certification by a registering body. “It allows us to design, develop, instruct and install Quality programs for clients who would not have the expertise in house.” SRC is now better able to deliver certifiable Quality measures which are part and parcel of the adoption of Lean Manufacturing principles and systems in the manufacturing sectors.

“Making the ISO program a part of manufacturers’ operations will ensure that small and medium enterprises (SMEs) exceed the demands of the global marketplace and thus remain valuable contributors to the provincial economy. The program also complements a variety of SRC offerings which help the SMEs to increase performance, utilize new technology, improve product design, achieve customer success, and so on, all of which will strengthen their overall operations and place themselves ahead of their competition.”



*Terry Bradley*



On November 23, 2001, former SIAST graduate Jennifer Cooney, of Meadow Lake, received the Saskatchewan Research Council's Technology-in-Action Award. This award goes to a Saskatchewan post-secondary student whose work on a project has real, tangible benefits for the province. While at SIAST, Ms. Cooney worked on a project for Millar Western Pulp (Meadow Lake) Ltd. The project involved effectively reducing equipment scaling in the BCTMP pulping process. Since then Ms. Cooney has accepted a position with Millar Western.

## clipbits

On With the Flow! Natural Resources Canada Minister Ralph Goodale, centre, throws a switch, officially opening SRC's expanded Pipe Flow Technology Centre. The new location in Saskatoon's industrial zone accommodates full-scale research on mineral and oilsand slurry flows, heavy oil transport, and backfill disposal of tailings. Also present at the June 25, 2001, event were (from left to right) Randy Gillies, Pipe Flow Technology Centre manager; Lorne Calvert, Premier of Saskatchewan; Maynard Sonntag, then Minister of Saskatchewan Energy and Mines; and John Oxenford, Manager, Research Programs, Syncrude Canada Ltd.



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