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## MEDIA RELEASE

# NSERC awards SFU researchers \$1.5M in grants

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**Photos:** <http://at.sfu.ca/SRFxVJ>

Three Simon Fraser University researchers will share more than \$1.5 million in new money for projects funded by a federal government research-grant agency.

The projects include higher-temperature tolerant Arctic charr brood stock, improved tree seed quality and seedling stress resilience and new smart-materials technology for handling delicate objects.

The new funds are part of a national [Strategic Project Grant](#) (SPG) announcement made today by [NSERC, the Natural Sciences and Engineering Research Council](#). The three-year grants support scientific partnerships that help strengthen Canada's economy, society and environment.

The SFU researchers and their projects include:

- **William Davidson**, a molecular biology and biochemistry professor who uses genomics and genetics to understand the basic biology of salmonid fishes and apply this information to the production and conservation of salmon and char. Davidson will use an almost \$500,000 grant to identify molecular genetic markers associated with increased thermal tolerance in Arctic charr and integrate them into the cold-water salmonid fish's traditional fresh-water breeding program. "This will enable the production of a line of Arctic charr that is more thermo-tolerant and thus able to survive spikes in temperature beyond the species' normal range," says Davidson. "Thermo-tolerant Arctic charr will also experience overall better health and will undergo less stress in increasingly unpredictable summer climates, both in the Yukon and at freshwater tank farms throughout the world."
- **Allison Kermode**, a plant cell biology and physiology professor, who will use a more than \$550,000 grant to address a shortage of healthy seeds and seedlings to fight the climate-change induced decline of valuable native conifer species. She will also tackle a loss of germination capacity during seed storage due to damage during handling and processing. For threatened species such as yellow cypress and whitebark pine, Kermode will use advanced technologies including non-destructive imaging to visualize water fluctuation and profiles of stress-protective metabolites. She will create a knowledge base of environmental influences on seed-to-seedling regeneration and stress hardiness. "We're focusing on how the environment during earlier seed maturation influences the later 'stress resilience' of the seedling—its ability to withstand stresses such as cold, drought and pathogens," says Kermode. Other species have ample seed quantities but their seed banks face challenges because the seeds contain resin vesicles in their coats that are easily damaged during preparation for storage. This leads to poor longevity and reduced germination. Kermode is studying underlying causes of these challenges to prevent seed loss.
- **Carlo Menon**, an engineering science professor, is using a more than \$480,000 to create a transformative smart adhering

interface (SAI) technology. It individually picks and places delicate items such as fruits and vegetables without damaging them or leaving marks. The absence of such a grasping technology forces the Canadian horticultural industry to rely heavily on manual labour, reducing its global competitiveness. “The SAI consists of smart materials that, controlled by an external stimulus, deform, adhere, hold and gently release delicate horticultural commodities,” says Menon. “This radically novel approach, when coupled to a robotic manipulator, will enable picking and placing delicate items at high speed without damaging them or leaving any mark.” The technology will directly address the needs of the Canadian horticultural industry and benefit the Canadian automation technology sector. The SAI will also be useful in other automation industries where delicate objects are handled such as bakery products, eggs, industrial plastic, glass, and metallic and wood products.

SFU’s three grants were among 78 newly funded programs across the country totaling \$38 million in today’s announcement by Minister of State for Science and Technology, Ed Holder.

As Canada's engaged university, SFU is defined by its dynamic integration of innovative education, cutting-edge research and far-reaching community engagement. SFU was founded almost 50 years ago with a mission to be a different kind of university—to bring an interdisciplinary approach to learning, embrace bold initiatives, and engage with communities near and far. Today, SFU is a leader amongst Canada's comprehensive research universities and is ranked one of the top universities in the world under 50 years of age. With campuses in British Columbia's three largest cities—Vancouver, Surrey and Burnaby—SFU has eight faculties, delivers almost 150 programs to over 30,000 students, and boasts more than 130,000 alumni in 130 countries around the world.

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