



In The News


[HOME](#) [NEWS/EVENTS](#) [LIBRARY](#) [CALENDAR](#) [DIRECTORY](#) [IT](#) [CONTACT US](#)

[In the News Today](#)
[Archives](#)
[OnCampus](#)
[Events](#)



Top Calgary researchers earn professorship awards

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Their research areas are diverse – ranging from creating award-winning novels to engineering novel imaging methods for detecting breast cancer. However, a group of top University of Calgary researchers will now share the prestigious title of University Professor.

The University Professorships program is a made-in-Calgary initiative aimed at recognizing and rewarding full-time faculty members who have built distinguished careers as researchers. To date, 12 U of C professors have been honoured with the award.

"The list of scholars awarded University Professorships is extremely impressive, both in terms of the accomplishments of each researcher as well as the broad spectrum of disciplines that they represent," says Dr. Dennis Salahub, U of C Vice-President (Research and International). "These are some of the U of C's stars and I salute their scholarship."

The University Professorships program is open to full-time faculty members as well as candidates being recruited to the U of C as full-time professors. Nominees are forwarded by U of C Deans and then reviewed by an advisory committee chaired by the Vice-President (Research and International).

The six professors being awarded University Professorships this year are:

[Dr. Tristram Chivers](#) (Chemistry)

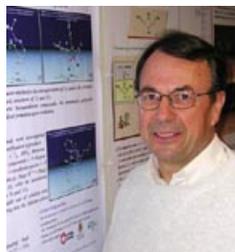
[Dr. Victor Coelho](#) (Music)

[Dr. Gordon Moore](#) (Chemical and Petroleum Engineering)

[Dr. Benno Nigg](#) (Kinesiology)

[Dr. Raj Rangayyan](#) (Electrical and Computer Engineering)

[Prof. Aritha van Herk](#) (English)



Tristram Chivers (Chemistry)

As an internationally recognized synthetic inorganic chemist, Tristram Chivers is producing new materials, a creative endeavour that he views as art as well as science.

The artistic aspect is because Chivers is creating novel materials with specific molecular architectures. The scientific goal of these new chemical 'designs' is to develop useful industrial materials, such as inorganic polymers with electronic or magnetic properties.

As well, Chivers and his experimental chemistry lab have produced precursors for semi-conductors, materials that are used in the electronic industries, for example, as infrared detectors.

Chivers is also writing a book on sulfur chemistry, specifically the text will focus on sulfur-nitrogen compounds. The broad range of topics includes superconducting materials, new drugs for the treatment of blood circulation problems and the mechanism of the gunpowder reaction.

Chivers's distinguished research and teaching career is highlighted by a long list of university, national and international awards. For example, in 2001, Chivers was honoured with the E.W.R. Steacie Award, an award for Canada's top chemists. In 1991, Chivers was made a Fellow of the Royal Society of Canada (the country's 'hall of fame' for academics).

As well, in 2002, an issue of the Canadian Journal of Chemistry was dedicated to Chivers "to honour his outstanding contributions to the chemistry of the main group elements." The academic journal included 32 articles by his colleagues, friends and

former students from all over the globe – Brazil, England, Finland, Germany, India, Japan, Romania, Scotland, Spain, the U.S., and Canada.

[BACK TO TOP](#)



Victor Coelho (Music)

Victor Coelho's areas of scholarly expertise range from Renaissance music to rock'n'roll and from the lute to the electric guitar.

Coelho, a professor of music and director of the U of C's Centre for Research in the Fine Arts, has written several books and numerous articles. His latest is the just-released text, *The Cambridge Companion to the Guitar*, a comprehensive exploration of the instrument's many genres and cultural impacts.

Coelho's next book will provide a history of instrumental music in the Renaissance. This research project will be taking him to Italy next September courtesy of a visiting professorship award from Villa I Tatti, The Harvard University Center for Italian Renaissance Studies. Located in Florence, the centre houses a rich library and archives.

On a previous trip to Italy as a visiting Harvard research fellow, Coelho discovered a score that had been 'lost' for centuries. This discovery culminated in performances and scholarly presentation of *The Music of the Medici Wedding of 1608*.

The music from this three-week-long, historic arts event has since been made accessible to the masses by a major international recording label, directed by Coelho with the Italian group *The Complesso Barocco*. As well, Coelho was the artistic director of performances of the score that took place in New York and Calgary.

As a musician, Coelho has performed on the Renaissance lute on international and local concert stages. He also regularly demonstrates his vocabulary of blues licks on the Fender Stratocaster and bottleneck slide guitar, as a member of the *Rooster Blues Band*. This U of C-based band performs regularly at a wide range of venues and is about to release its second CD.

[BACK TO TOP](#)



Gordon Moore (Chemical and Petroleum Engineering)

Gordon Moore's research career has been dedicated to understanding an environmentally friendlier method of enhanced oil recovery – air injection.

Moore works closely with his colleague Raj Mehta as part of the U of C's In Situ Combustion Research Group. The group operates a world scale combustion lab, which was made possible through a significant donation to the U of C by Amoco Production.

Enhanced oil recovery is usually associated with water injection or steam injection methods. These methods increase the productivity of a reservoir by injecting steam or water into a reservoir to essentially push the oil to the surface or towards a more accessible well site.

The air injection process involves pushing air into a reservoir, igniting a small portion of the oil and harnessing the advance of the resulting underground fire to move the oil. The benefits of this method are that it doesn't require the vast amounts of water required for water or steam injection and it reduces the volume of carbon dioxide vented per volume of oil produced as compared to steam injection.

Specifically, Moore's research focuses on the highly complex oxidation reactions that occur during in situ combustion. He is also working to answer the tricky question of why oils that appear to be similar in properties can behave so differently in the air injection process.

To date, Moore's research contributions have earned him international honours such as being named a Distinguished Member of Society of Petroleum Engineers and a Distinguished Lecturer of the Society of Petroleum Engineers International in 2001. He also won the Distinguished Service Award from the Petroleum Society of CIM in 1995.

As well, Moore and Mehta's expertise has helped establish 19 international research and educational partnerships across the globe (with countries stretching from China to Peru) that are benefiting the U of C and the Canadian oil patch.

As a University Professor, Moore will be able to devote more time to the vast activities of his lab, explore various spin-off projects and contribute new insights to timely energy issues, such as CO2 sequestration.

[BACK TO TOP](#)



Benno Nigg (Kinesiology)

Benno Nigg's research expertise is focused on lower extremity biomechanics – a field of study that is keeping society moving towards a healthier lifestyle.

Specifically, Nigg studies how our feet handle the stress of walking, running and general activity as well as how shoe and orthotics manufacturers can improve their products.

Nigg is the founder and co-director of the Human Performance Lab (HPL) in the Faculty of Kinesiology. The HPL is one of the world's leading research centres in basic and applied human neuro-musculo-skeletal health and well-being. In fact, last year an independent external reviewer deemed the HPL's research activities "the best in the world in clinical biomechanical research."

The HPL is home to a multidisciplinary research group, comprised of nine full-time and seven adjunct faculty members doing research in anatomy, muscle mechanics, physiology, motor control, biochemistry and biomechanics. In total, the Human Performance Lab supports more than 100 full-time researchers, visiting professors, postdoctoral students, graduate students, technicians and support staff who have come to Calgary from all over the world.

The HPL attracts in the range of \$4.6 million a year in research funding. This funding includes Nigg's contract research for major corporations such as Adidas, Nike and Dr. Scholl's.

Nigg has won several local, national and international awards for his work, including a lifetime achievement award by the Canadian society of Biomechanics in 2002 and the Olympic Order, the International Olympic Committee's highest award for contributions to exercise and sport.

[BACK TO TOP](#)



Raj Rangayyan (Electrical and Computer Engineering)

Raj Rangayyan's significant research contributions include developing improved methods for computer-aided diagnosis of breast cancer.

Rangayyan, a professor in the U of C's Department of Electrical and Computer Engineering, works in the field of biomedical signal and image analysis.

A method he developed for contrast enhancement in mammograms has allowed radiologists to differentiate between malignant and non-malignant disease of the breast, leading to earlier detection of breast cancer. He has also developed additional methods for detecting and analyzing indicators of breast cancer, such as calcifications and tumors.

Rangayyan's research has also been applied to knee-joint cartilage pathology. His contributions in this field include the development of methods for non-invasive computer-aided diagnosis via analysis of joint vibration signals, which could be used to monitor the effectiveness of treatment.

Rangayyan has recently launched a research project aimed at developing image analysis techniques to improve the monitoring and treatment of neuroblastoma, a tumor found in infants that is responsible for up to 10 per cent of all childhood cancers. This project is in partnership with the Alberta Children's Hospital and the University of São Paulo and Children's Institute in São Paulo in Brazil (where Rangayyan an honorary visiting professor).

Rangayyan has been invited to lecture in several countries and has received many national and international awards and honours. In the past three years he has been elected as a Fellow of four professional societies: the International Society for Optical Engineering, the American Institute for Medical and Biological Engineering, the Institute of Electrical and Electronics Engineers, and the Engineering Institute of Canada.

[BACK TO TOP](#)



Aritha van Herk (English)

Aritha van Herk is one of Alberta's most talented novelists and an inspiring professor to new generations of creative writers graduating from the U of C's Department of English.

To date, van Herk has published five novels: Judith, The Tent Peg, No Fixed Address, Places Far From Ellesmere, and Restlessness.

As well as critical acclaim, these novels have earned several provincial and national honours, including the Seal First Novel Award in 1978

for Judith and the Howard O'Hagan Prize in 1987 for *No Fixed Address*. Van Herk was also nominated for a Governor General's award for *No Fixed Address*.

In recognition of her distinguished scholarly career, van Herk was elected as a Fellow of the Royal Society of Canada in 1997.

Her critical and non-fiction works, *A Frozen Tongue* and *In Visible Ink*, address questions of reading and writing within the context of Canadian culture and regionalism. As well, her "irreverent but relevant" history of Alberta, *Mavericks*, appeared in 2001 and won the Grant MacEwan Author's Award.

As a University Professor, van Herk will continue her research on the representations of laundry as text and marker within material culture. This study, funded by the Social Sciences and Humanities Research Council of Canada, encompasses an analysis of representations of laundry in western literature, art, film, and music, and follows on her previous work on clothing and travel within fiction and non-fiction.

Her future research will amplify her previous work on feminist readings of the picaresque as melancholic character, and on transgressive women as representational figures within both fiction and metacritical readings.

[BACK TO TOP](#)

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