HARRISON—MACRAE FAMILY LECTURE

The Harrison – MacRae Family Lecture Series was established through the generosity of the estate of the late John H. Harrison (Queen's B. Comm., 1949) and Elizabeth (Betty) Harrison (nee MacRae, Queen's B.A., 1949).

For over a century the Harrison - MacRae family has attended Queen's University and has shown a distinct enthusiasm for the arts and sciences. Elizabeth Harrison is the daughter of Queen's graduates Alex E. MacRae (B.Sc. Chem. Eng., 1914) and Irene McAllister (B.Sc. Math & Physics, 1914), and sister to Queen's graduates Jean C. Doherty (B.A. 1939), Donalda I. Beattie (B.A. 1939), Marion E. Bradley (B.A. 1946), and brother Robert A. MacRae (B.Sc. Chem. Eng., 1954). Their son Ian Harrison (Queen's B.Sc. Chem. Phys., 1981) is a Professor of Chemistry at the University of Virginia. Numerous children, grandchildren and great grandchildren have likewise attended Queen's University.

In recognition of their long affinity for Queen's, this lecture series will feature seminars by distinguished scientists on topics within the fields of chemical physics or physical chemistry.

PREVIOUS HARRISON-MACRAE LECTURERS

2024 • O. Isayev

2020 • U. Schollwöck

2019 • I. Harrison

2019 • P. Willis

2019 • C. Adachi

2018 • B. Bayram

2018 • V. Batista

2016 • A. Aspuru-Guzik

Queen's Chemistry

Department of Chemistry
Queen's University
and
Department of Physics, Engineering Physics and Astronomy

is honoured to co-host the 2024 Harrison—MacRae Lecturer:

Prof. Ilsa Cooke

The University of British Columbia

"Unraveling the journey of interstellar carbon – from molecular clouds to solar systems"

Friday, November 22, 2024
11:30 AM
Room 117, Chernoff Hall

PROF. ILSA COOKE

Prof. Ilsa Cooke
Department of Chemistry
The University of British Columbia

Ilsa Cooke is an Assistant Professor in the Department of Chemistry at the University of British Columbia. She completed her undergraduate studies at the University of Otago, in Dunedin New Zealand, where she worked on measuring uranium-isotope ratios in meteorites and marine carbonates. Following her graduation, she worked as a Research Assistant at the Centre for Trace Elements Analysis, before moving to the University of Virginia as a Fulbright fellow to conduct her PhD in Physical Chemistry. Her thesis research was conducted under the supervision of John Yates, Eric Herbst, Karin Oberg and Edith Fayolle. Her PhD focused on measuring thermal and photon-induced processes in astrochemical ice analogues using ultra-high vacuum experiments.

From 2016-2018, she worked as a visiting researcher in the group of Prof. Oberg at the Harvard-Smithsonian Center for Astrophysics where she studied diffusion, desorption and photochemistry in ices. In 2018, she moved to the University of Rennes 1 to join the group of Ian Sims and work on developing new methods to measure reaction products at low temperatures relevant to astrochemistry. In 2019, she was awarded a Marie Curie postdoctoral fellowship to study low-temperature reactions involving CN and aromatic molecules.

Since moving to UBC, her group has focused on building laboratory experiments to constrain the formation of aromatics and other complex organic molecules in the interstellar medium. She is particularly interested in the formation of heterocycles and properties of radicals on low-temperature ice surfaces. In addition to her laboratory work, Dr. Cooke is a co-PI of the GOTHAM collaboration and uses radio telescopes to probe aromatic molecules and their precursors in star-forming regions.

SELECTED HONOURS RECENT PUBLICATIONS

- Ilsa R Cooke, Divita Gupta, Joseph P Messinger, Ian R Sims. Benzonitrile as a proxy for benzene in the cold ISM: Low-temperature rate coefficients for CN+ C6H6. Astrophysical Journal Letters. 2020, 891, 2, L41
- Gabi Wenzel*, Ilsa R. Cooke*, P. Bryan Changala et al. Detection of Interstellar 1 -cyanopyrene: a four-ring polycyclic aromatic hydrocarbon in TMC-1, Science, 2024 (In Press, 10.1126/ science.adq6391)

SELECTED HONOURS & AWARDS

- The Laboratory Astrophysics Division (LAD) of the American Astronomical Society (AAS) 2024 Early Career Award
- Marie Skłodowska-Curie Individual Fellowship, 2019
- Fulbright Science and innovation award, 2013