

Indigenous Astronomy Workshop



Future of Canada
Project



SCHEDULE: Fri 7th and Sat 8th July 2023

Location: Burke Science Building (BSB; [building 11 on this map](#)), room BSB 120

McMaster University, 1280 Main St W, Hamilton, Ontario

Parking passes will be provided at the registration desk (please park in gated parking lots)

Friday 7th July 2023

- 09:30-10:00 Welcome, land acknowledgement, opening from Elder Kathy Knott
Snacks, tea and coffee provided
- 10:00-12:00 Session 1 – Sam Doxtator
Indigenous Astronomy as told by the Haudenosaunee
Samantha has accepted the gift to continue her sister Sasha's work and research. Sasha made her journey back to Skyworld in July 2021. This presentation will fill your spirit with Stardust and Astronomical Knowledge.
- 12:00-13:00 Lunch (provided)
- 13:00-14:30 Session 2 – Corey Gray
Portrait of a Gravitational Wave in Blackfoot
Learn about the cutting-edge science of gravitational wave astronomy and the LIGO/Virgo/KAGRA collaborations from someone whose roots hail from the Siksika Nation of Treaty 7 in southern Alberta, and who works at one of these gravitational wave detector outposts a mere few hours south of the Canadian border. Join us to hear about Corey Gray's journey within a "big science project" whose genesis began in the early 70s, and which made scientific history in 2015. Also learn how Corey brings his whole self to his career and how he recruited Sharon Yellowfly (his mom) to help him connect Blackfoot culture with astrophysics.
- 14:30-15:00 Break (snacks, tea and coffee provided)
- 15:00-16:30 Session 3 – Tom Deer
From the Centre of the Universe: A Hodinohsꝁ:ni journey through time and space.
Tom will be explaining selected portions of the Hodinohsꝁ:ni creation story as related by John Arthur Gibson, and exploring how the teachings contained within it, can help us relate to, and understand the cosmos.

Saturday 8th July 2023

- 09:00-10:45 Session 4 – Dr Laurie Rousseau-Nepton
Rediscovering our knowledge
I will discuss my journey in looking for astronomical information hiding in the ancestral knowledge of my community. I will show concrete examples of my findings and encourage communities to engage in similar practice to provide content that could be used to teach Indigenous Astronomy in classrooms.
- 10:45-11:15 Break (snacks, tea and coffee provided)
- 11:15-13:00 Session 5 – Vicki Monague
Gizhemanido Gaa-ozhibii'iged Gakina Gegoo Imaa Anangokaaning
Since time immemorial, Anishinaabeg have organized their lives harmoniously in unison with the motion of the cosmos. Anishinaabe Intelligence, as a model of teaching and learning, kept and held sacred our star stories (dibaajimowinan) and teachings (aadizokaanan) across generations. Through oral tradition, total sensory engagement practices, mentorship, and continuous experiential learning, intergenerational transmission of our Anishinaabe Knowledge Bundle continued for thousands of years on Turtle Island. This presentation emphasizes *Anishinaabeg Intelligence* through conceptualizing the Anishinaabe celestial sphere in relation to cultural narratives and linguistics concepts held within the Anishinaabe worldview. Through understanding our relationship with the cosmos, we present a paradigm for linguistic and cultural justice and renewal for Anishinaabe Peoples.
- 13:00-14:00 Lunch (provided)
- 14:00-16:00 Session 6 – Bonita Bohnet
Above as Below: Exploring Northern Indigenous Astronomical Knowledge
What do we mean when we say Indigenous astronomy? This is the question we will explore in this multidimensional workshop and talk. Utilizing traditional oral storytelling and modern planetarium software, we begin to answer this question with an exploration of the rich, and diverse sky lore, and culture, of Indigenous groups living in northern regions, including the Dene, Gwitchin and Inuit. An examination of Indigenous astronomy, including ancient and advanced astronomical knowledge held by Indigenous peoples will be presented, along with a demonstration of technology they possessed. The significant role of Indigenous astronomy in academia, including “decolonization” efforts, “truth and reconciliation”, scientific advancement, and two eye seeing will also be discussed.
- 16:00-16:30 Farewell, closing from Elder Kathy Knott

SPEAKER BIOS



Elder Katherine Knott is Crane or Shuggi, Jijakk clan of the Curve Lake First Nation, part of the great Mississauga Nation. Kathy has participated with McMaster as part of the Elder in Residence program for 7 years now and is grateful for the opportunities to share and learn with the students, staff and academics as we move along our life's path. She currently volunteers on two committees in her home community and loves spending time there with family and friends relaxing in the Kawartha Lakes Region. She has worked in various levels of management within corporate and government settings and has had the pleasure to work with a number of First Nations both within the province of Ontario and Nationally.



Samantha Doxtator

Haudenosaunee - Oneida, Wolf Clan
Samantha is a Personal Development Consultant who specializes in teaching life and employability skills that are grounded by traditional values. She has over 25 years of communications experience and uses this knowledge to help build bridges of new understandings. Ms. Doxtator has worked with many organizations across Indigenous Country. The intention with her work is to enhance original ways of knowing, and to nurture; intergenerational gifts, creativity, and innovation. She is thankful for this journey of being a lifelong learner, researcher, teacher, and knowledge keeper.



Corey Gray is Scottish & Blackfoot and a member of the Siksika Nation of Alberta, Canada. He grew up in southern California and received Bachelor of Science degrees in Physics and Applied Mathematics from Cal Poly Humboldt. After undergrad, he was hired by Caltech to work for the astronomy project, LIGO (Laser Interferometer Gravitational wave Observatory) at the LIGO Hanford Observatory in Washington State. At LIGO, Corey has worked on teams to both build and operate gravitational wave detectors since 1998. The LIGO Scientific Collaboration (LSC) made historic news in 2016 by announcing the FIRST direct detection of gravitational waves, which helped prove a prediction made 100 years earlier by Albert Einstein! This also garnered the

founders of LIGO the Nobel Prize in Physics for 2017. The LIGO, Virgo, & KAGRA collaborations are currently up to a total of 90 gravitational wave detections! Corey enjoys & appreciates the importance of science communication. Over the years he has given keynotes, plenary talks, public colloquia and a TEDx talk. He especially loves to share the science of Einstein with Indigenous youth and other underrepresented groups. Corey is currently serving as a juror for the National Academy of Science's "Awards for Excellence in Science Communication". Corey is proud to be Indigenous. He recruited Sharon Yellowfly (his mom) to translate LIGO scientific documents into the Blackfoot language. In his free time, Corey likes to backpack, travel, salsa dance, crosscountry ski, go to pow wows, share science with the public, and kayak (with a wooden kayak he built).



Thomas Haęhokta Deer

Born and raised on the Kahnawake First Nation, Tom is a conversationally fluent speaker of the Mohawk, Cayuga and Onondaga languages. Additionally, he is a ceremonial speaker and singer in the traditional Hodiŋshó:ni Onondaga longhouse at Grand River. Tom holds a BA in Anthropology, BEd, specialists certification for teaching Iroquoian languages, Environmental Education AQ parts 1 and 2, and is a member in good standing with the Ontario College of Teachers. For the past thirty-four years, Tom has been residing and working as a language teacher in the elementary school system on the Six Nations of the Grand River First Nation in Southern Ontario. During that time his focus has been as a teacher in the Mohawk and Cayuga immersion programs, but also included positions as Acting Principal and Vice Principal, as well as Native Language consultant and lead language and

culture teacher. In addition to teaching elementary aged children, Tom also worked for sixteen years as a Sessional Instructor of Mohawk language at McMaster University in Hamilton Ontario, as well as in the Onkwehonwe Language diploma and degree programs at Six Nations Polytechnic, which is the first on reserve fully accredited BA program in Canada. Tom has a deep interest in researching the astronomical knowledge of the Hodiŋshó:ni, and for many years has been interviewing elders, and investigating anthropological native language texts to identify astronomical wisdom. With this traditional knowledge, he helped to develop a show for the W.J. McCallion Planetarium at McMaster University based on the Hodiŋshó:ni origin story of the Ursa Major (Big Dipper) constellation, and has taught courses at Six Nations Polytechnic in ethno-astronomy. Tom served for eleven years as a volunteer/part-time firefighter with the Six Nations Fire Department, attaining fire-fighter level II certification and the rank of captain. He and is also a current board member on the Six Nations Language Commission, and a past board member of the Grand River Post Secondary Education Office. In his spare time, Tom enjoys playing golf and developing his equestrian skills, and together with his wife Tracy, they enjoy hiking, playing disc golf, and enjoying the company of their three children and six grandchildren.



Dr Laurie Rousseau-Nepton is a resident astronomer at the Canada-France-Hawaii Observatory. She has accepted a position at the University of Toronto and the Dunlap Institute starting in September of this year. She is the first Indigenous woman in Canada to obtain a PhD in astrophysics; she received her diploma from Université Laval by studying regions of stellar formation in spiral galaxies. She is now leading an international project called SIGNALS, aiming at observing thousands of newly born stars in galaxies close to the Milky Way to understand how their birthplace affect the rest of their life and the galaxies evolution. Her work is connected to the development of

new instruments for astronomy. She has been actively involved among young people as a mentor for the Aboriginal Science Fair and in several other projects such as the Connected North and Astronomy for Indigenous People of Canada, for which she works as a volunteer speaker for remote communities. She is committed to equity, diversity and inclusivity in science and is a committee member for the Canadian Association of Physicist and the Maunakea Observatories.



Vicki M. R. Monague is a Bodwewadami-Ojibwe Anishinabe Kwe from Beausoleil First Nation. As an activist in local, national, and international water movements connected to Indigenous liberation for over ten years, she has won multiple awards including being a co-recipient of the YMCA Peace Medallion. In addition, she has served on multiple boards and commissions related to water and national Indigenous rights activism throughout the Province of Ontario. She is most remembered for her lead role in a water source protection movement, which successfully stopped the development of landfill on a pristine aquifer in 2009. Vicki is a Master of Education Candidate at Lakehead University. She currently teaches the Ojibwe language and Anishinaabe studies in post-secondary institutions. She holds an Honours Bachelor of Arts in Political Science and a college diploma in Ojibwe. Vicki is a single mother of three children, living in Midland, Ontario, Canada.



Bonita Marie Bohnet

Working on finishing a Bachelor of Arts in Native Studies from the University of Alberta's Faculty of Native Studies, Bonita Marie Bohnet is a Métis student and scholar from the Northwest Territories with a passion for Indigenous science and astronomy. Her research and work aim to explore the relationships between Indigenous communities, their traditional knowledge systems, and the celestial bodies they observe. By engaging with Indigenous knowledge holders and utilizing interdisciplinary research methods, Bohnet seeks to document, preserve and share the rich cultural heritage of

Indigenous astronomy, while also contributing to the broader fields of astronomy and science.

Research Assistant to Astronomer Dr. Robert Cockcroft, Assistant Professor in the Department of Physics and Astronomy, and Director of the William J. McCallion Planetarium at McMaster University, Bohnet has contributed research to the development of a new Indigenous Astronomy course being delivered at McMaster University in the fall of 2023. Bohnet will also be facilitating an introductory Indigenous Astronomy course seminar at McMaster University in the fall term, a which she designed encompassing the star lore, sky culture, and Indigenous scientific knowledge of the north. Currently, she is producing a new planetarium show on northern Indigenous astronomy and science for the William J. McCallion Planetarium, which will premier this fall. Bohnet views this work as crucial for preserving Indigenous knowledges and promoting cross-cultural collaboration in the scientific community.

Bohnet also contributes to the preservation and cultural continuance of Indigenous astronomical star knowledge through classroom education. The goal of Indigenous Astronomy is to deepen students' understanding of Indigenous peoples' unique perspectives on the universe, and their profound contributions to the scientific understanding of the cosmos. This is achieved through presentations that include storytelling and sky lore from several different Indigenous groups along with demonstrations of how they are represented in the stars utilizing free planetarium software that can be downloaded and used by everyone. Students learn how Indigenous peoples used celestial objects for wayfinding, time reckoning and measurement. Additionally, students are introduced to Indigenous Peoples' advanced knowledge needed for weather forecasting and understanding retrograde motion and procession. Basic astronomical terminology are defined, and clear comparisons between western and Indigenous science discussed; encouraging participants to reflect on how science both affects and is affected by worldview. With Indigenous astronomy, Indigenous people are recognized and celebrated as the scientists and knowledge creators they have always been.

FUTURE EVENTS

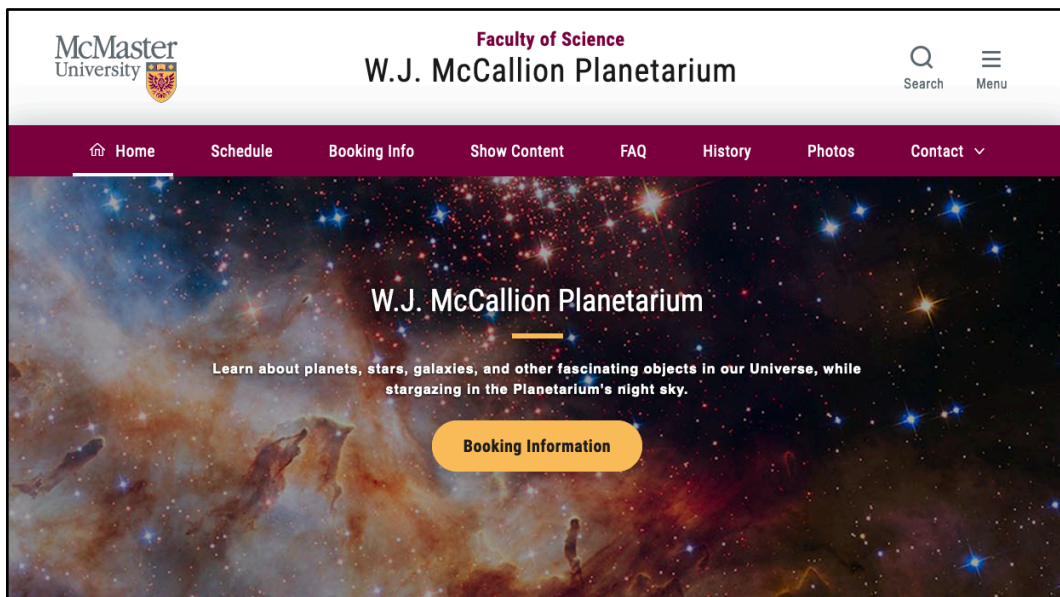
1. Tipis and Telescopes



Registration link:

<https://www.eventbrite.com/e/tipis-telescopes-2023-tickets-648304635617?aff=oddtcreator>

2. McMaster Planetariums



McMaster has two planetariums: the McCallion Planetarium (located in BSB) and the new portable planetarium. Our main mode of outreach is through inviting guests to the McCallion, and we are also ramping up our efforts with the portable. Our focus with the portable is to reach underserved and underrepresented communities (which is specified in our funding goals) - and so far, we have been on visits to a number of Indigenous communities and programs for underprivileged youth. If you are interested in either facility, please visit the <https://planetarium.physics.mcmaster.ca/> and/or contact planetarium director Rob Cockcroft at cockcroft@mcmaster.ca.

3. Total Solar Eclipse



On Monday, April 8, 2024, the Moon will pass in front of the Sun and cast its ethereal shadow onto millions of Canadians. We have less than one year to prepare for this once-in-a-lifetime total solar eclipse! Now is the time to consider where you will be on April 8, 2024, if you will travel to view the eclipse, and how you will observe the eclipse safely. Use this [Google Map](#) or [TimeAndDate](#) to find the exact time of the eclipse in your area.

Full Google Map link:

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2024_GoogleMapFull.html?Lat=49.36846&Lng=-95.87120&Zoom=4&LC=1

Full TimeAndDate link: <https://www.timeanddate.com/eclipse/map/2024-april-8>

