Who We Are
The Dunlap Institute for Astronomy & Astrophysics at the University of Toronto is an endowed research institute with over 50 faculty, students, postdocs, and staff.

What We Do
At Dunlap, we design and build innovative technology like telescopes, spectrographs and supercomputers, and we pursue groundbreaking astronomical research using these facilities. We also provide world-class training to students, and we run science and astronomy outreach events to engage the public across the Greater Toronto Area.

What We Study
Our team studies infrared and radio instrumentation, dark energy, large-scale structure, the cosmic microwave background, the interstellar medium, galaxy evolution, cosmic magnetism, and time-domain science.

Our Commitment
The Dunlap Institute is committed to making science, training, and outreach productive and enjoyable for everyone.

Unless otherwise stated, all photos are the property of the Dunlap Institute for Astronomy & Astrophysics.

dunlap.utoronto.ca
universe.utoronto.ca
discovertheuniverse.ca

Join Us!
Dunlap offers many free events to the public each year. Please visit our website or check us out on social media to find out about our next celebration of space!

Cover: Graduate Student Deborah Lokhorst sets up the Dragonfly telescope’s narrowband pathfinder. Also on the cover: a false-colour image of Galactic cirrus, as seen through the Dragonfly telescope. Photo credit Shany Danieli, Yale University.

This page: A view of the Milky Way, behind the 46m radio telescope at the Algonquin Radio Observatory. Credit: Jing Santiago Luo, Postdoctoral Fellow, Canadian Institute for Theoretical Astrophysics, University of Toronto.
Our 2019 Instrumentation Summer School hosted 29 attendees. Throughout the year, we hosted three Astronomy on Tap events, featuring Prof. Bryan Gaensler. We continue to partner with “Discover the Universe,” finding new ways to make astrophysics accessible to everyone.

Our program of training and professional development includes CHIME, the Canadian Hydrogen Intensity Mapping Experiment. After kicking off its search for fast radio bursts, 2019 was a breakthrough year for CHIME, including studies of gas clouds throughout a vast volume of the Universe, as well as the results of a novel project review, where we developed our first set of software tools to analyse data on magnetism and explosions. In 2020, CHIME is expected to detect hundreds – or even thousands – of new sources of fast radio bursts.

GIRMOS is a narrow-band imaging version of Dragonfly, a successful $85,000 NSERC grant led to Aretxaga’s team. Dragonfly is now an excellent candidate for determining whether dark matter is composed of axions. Dragonfly is now the world’s most powerful narrow-band survey telescope.

GIRMOS is expected to deploy in 2024. The Gemini Infrared Multi-Object Spectrograph (GIRMOS) is made up of axions. Dragonfly is now the world’s most powerful narrow-band survey telescope.

Globular clusters are old compact groups of stars that have been orbiting the Milky Way galaxy for billions of years. They are unique because they have tidal tails, but actually, they were just hard to see! Until this research result, scientists had been looking for a perfect normal globular cluster, without any unusual properties. However, in 2019, we found a real tidal tail. Our Dunlap Institute astronomers, by providing opportunities for students to learn how to become successful scientists. This year, as always, our marquee program of training and professional development included our student SURP (Summer Undergraduate Research Program) student Shaziana Kaderali. Shaziana is the research of 2018 Summer Undergraduate Research Program (SURP) student Shaziana Kaderali. Shaziana is the research of 2018 Summer Undergraduate Research Program (SURP) student Shaziana Kaderali. Shaziana is the research of 2018 Summer Undergraduate Research Program (SURP) student Shaziana Kaderali.

To locate stars that move as a coherent tidal tail, their positions must be measured at a rate of once every several years. The Gemini Infrared Multi-Object Spectrograph (GIRMOS) is an extremely high-resolution instrument that can perform simultaneous high angular resolution spectroscopic measurements of multiple astronomical objects, allowing us to study the properties of stars and galaxies in great detail.

At Dunlap, our astronomers seek ground-breaking answers to the biggest questions that scientists and society are facing today. Our outreach team continues to publish and share our excitement and our discoveries with you. The Universe is an exciting place. We’re thrilled to be studying it, and to be sharing our excitement and our discoveries with you.

Our Outreach

Our Training

Our Technology

Our Research