Exoplanets in the classroom



IREx Astronomers' Biographies

Meet our scientists!

Institut Trottier de recherche sur les exoplanètes
Trottier Institute for Research on Exoplanets
IREX
Université de Montréal

À LA DÉCOUVERTE DE L'UNIVERS DISCOVER THE UNIVERSE

aesta Association pour l'enseignement de la science et de la technologie au Québec

ÉCOLE EN RÉSEAU

Québec

How to use these biographies

On the following pages, you will learn more about scientists working in the field of astronomy, known as astronomers or astrophysicists.

They are all members of the Trottier Institute for Research on Exoplanets (IREx) and are at different stages of their careers. All these scientists have taken part in at least one of our videos, either the "ExoBites" video series or the "Des exoplanètes et nous" series, all of which can be found at www.exoplanetsintheclassroom.ca.

The biographies were produced as part of the “Exoplanets in the Classroom” project. They can be used in a variety of contexts, for example to learn more about these scientists when viewing our videos, or to learn more about the careers of different people who have chosen astrophysics as a career.

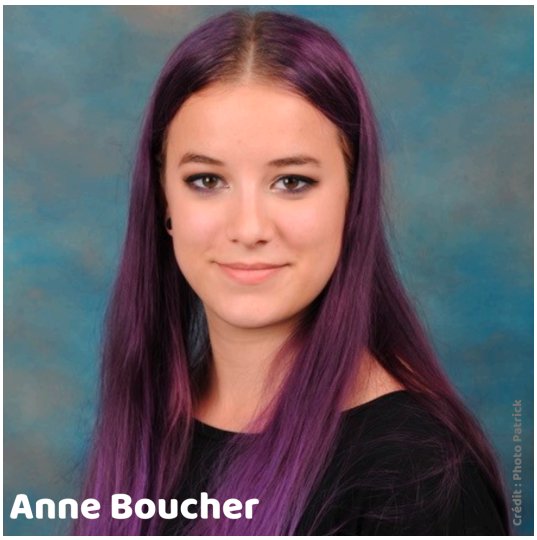
Scientists’ Biographies

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Anne Boucher

Researcher in Astrophysics at McGill University, member of the Trottier Institute for Research on Exoplanets

Co-host of ExoBite 4: The stars that dance



Anne Boucher was born in Montreal, where she has lived all her life. She currently lives in the Villeray borough.

She has had a passion for drawing and in-line skating since her childhood. Now, she has many other hobbies, including crochet, pottery, watercolour, board games, and hiking. When travelling, she also enjoys scuba diving.

Anne studied Natural Sciences at the Collège de Maisonneuve, before embarking on studies in Physics at the Université de Montréal. She knew right away that she wanted to specialise in Astrophysics!

For her M.Sc. degree, she worked with Prof. David Lafrenière. She became interested in the discs of gas and dust found around newly-forming stars. The presence of these discs could provide clues to the formation of planets around these stars.

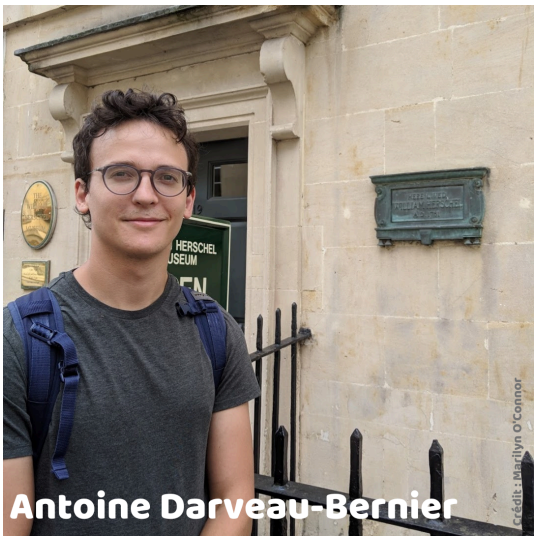
As a Ph.D. student, still at the Université de Montréal, she studied the atmospheres of hot gas giant exoplanets, such as HD 189733 b and WASP-127 b. She developed computer tools to study them with the SPIRou (acronym for "*SPectropolarimètre InfraROUge*") instrument, installed at the Canada-France-Hawai'i Telescope in the United States. By studying the characteristics of their atmospheres (such as their composition, clouds, and winds), she has been able to obtain valuable information on the formation and evolution of these planets.

Since 2022, she has been pursuing her work on exoplanet atmospheres as a postdoctoral researcher in Nicolas Cowan's team at McGill University.

Antoine Darveau-Bernier

Astrophysicist at the Université de Montréal, member of the Trottier Institute for Research on Exoplanets

Co-host of ExoBite 4: The stars that dance



Antoine Darveau-Bernier was born and raised in Montreal. He is also fond of the Lac-Saint-Jean region, where his parents are from. He currently lives in the Ahuntsic borough of Montreal.

Antoine has a passion for sports, especially Ultimate Frisbee and rock climbing. He is also interested in music and singing. When he was younger, he was a chorister with the *Petits-Chanteurs du Mont-Royal*. He has also taught snowboarding.

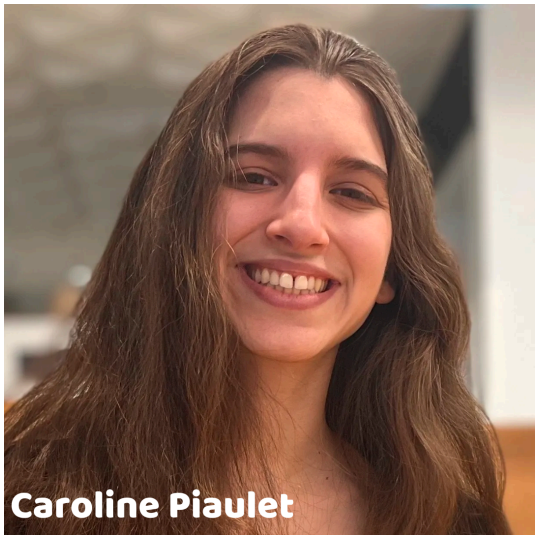
Antoine studied Natural Sciences at the Collège Bois-de-Boulogne, then went on to earn a B.Sc. degree in Physics and Mathematics at the Université de Montréal.

He chose to devote his graduate studies to Astrophysics. In his M.Sc. program, he first studied white dwarf stars, under the supervision of Prof. Pierre Bergeron, again at the Université de Montréal. White dwarfs are dead stars that are much smaller than the Sun, but are also much more compact. Our Sun will become a white dwarf in several billion years. Antoine used the telescope at the Observatoire du Mont-Mégantic to better understand the composition of these stellar corpses.

As a Ph.D. student, Antoine continued his studies at the Université de Montréal, this time under the supervision of Prof. René Doyon and Prof. David Lafrenière. He became interested in the atmospheres of extremely hot exoplanets the size of Jupiter. To study these "hot Jupiters", he used the SPIRou (acronym for "*SPectropolarimètre InfraROUge*") instrument, installed on the Canada-France-Hawai'i Telescope in the United States. He also used the James Webb Space Telescope, for which he wrote a computer program to help process the data. He named this program ATOCA, an acronym that describes his program, but which is also a Indigenous word for “cranberry” in Quebec!

Caroline Piaulet

Ph.D. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets
Co-host of ExoBite 3: Alien Life



Caroline Piaulet grew up in France, but has been living in Montreal's Parc-Extension borough for several years now.

In her spare time, Caroline loves reading novels, dancing, and going for hikes. When she was younger, she loved taking walks in the forest. She collected the pretty stones she found on these outings.

Motivated by her growing passion for astronomy, Caroline decided to study Physics. She chose the Université de Montréal for her studies and moved from France to Canada.

During her B.Sc. degree, she had the opportunity to study many things: giant stars, the smallest particles in the Universe as well as exoplanets, and planets beyond the Solar System. She enjoyed this last subject so much that she decided to pursue it!

Caroline jumped straight into a Ph.D. after her B.Sc. degree, bypassing the M.Sc. stage. She is interested in the atmosphere of exoplanets, which she studies using large telescopes in space, such as the Hubble Space Telescope and the James Webb Space Telescope. She is intrigued by planets between the size of Earth and Neptune. These planets are very common in other planetary systems, yet there are no such planets in our Solar System. They are fascinating because they may also be habitable!

A few years ago, during her Ph.D., Caroline spent a few months in Bern, Switzerland, working on a research project similar to her Ph.D. work.

In 2021, Caroline launched *InitiaSciences*, a program which offers secondary school and CEGEP students the opportunity to do research, mentored by young university scientists. She hopes that more and more students will benefit from this experience in the future!

Charles Cadieux

Ph.D. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets

Guest on ExoBite 7: A Cosmic Wink



Charles Cadieux was born and raised in Montreal. He still lives there, in the Ahuntsic borough in the North of the island.

As a child, he loved to draw the Solar System... in the correct order, of course! Charles has also enjoyed following hockey, especially Montreal Canadiens games, since his childhood. He also enjoys playing board games with his friends.

After secondary school, he studied Natural Sciences at the Collège Bois-de-Boulogne. He then went on to study Physics at the Université de Montréal for his B.Sc. He really enjoyed his courses, which helped him improve his math skills and gain a better understanding of how the world around us works.

In 2018, Charles began an M.Sc. degree in Astrophysics at the Université de Montréal, under the supervision of Prof. René Doyon, the Director of the Trottier Institute for Research on Exoplanets and the Observatoire du Mont-Mégantic. His project involved using Mont-Mégantic's 1.6-metre telescope to observe exoplanets (planets beyond our Solar System) passing in front of their star — an event known as a *transit*.

Since 2020, Charles has been working on his Ph.D. at the Université de Montréal, still under the supervision of Prof. Doyon. His objective: to measure the size and mass of recently identified exoplanets. He is particularly interested in exoplanets that are small and rocky and are neither too hot nor too cold... like Earth! To learn more about the latter, he uses the SPIRou (acronym for "*SPectropolarimètre InfraROUge*") instrument, located at the Canada-France-Hawai'i Telescope in the United States.

In 2022, Charles and his team announced the discovery of TOI-1452 b. This exoplanet, which is slightly larger and more massive than Earth, could possibly be covered by a deep ocean of liquid water. This is a hypothesis to be confirmed with more observations!

Érika Le Bourdais

M.Sc. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets

Co-host ExoBite 7: A Cosmic Wink



Érika Le Bourdais is originally from Gatineau. She now lives in Montreal, in the Côte-des-Neiges-Notre-Dame-de-Grâce borough.

Érika loves movies. Her favourite movie is WALL-E, the story of a little robot who must clean up the Earth made uninhabitable by human pollution.

After secondary school, Érika studied Media Arts and Technologies at Cégep de Jonquière. Driven by a wide range of interests, she then began university studies in Communications. However, she soon realised that she wanted to take up the challenge of becoming a scientist instead. Since she hadn't studied science in CEGEP, she had to take a preparatory year of science courses at the Université de Sherbrooke.

With a passion for mathematics and physics, Érika enrolled in a B.Sc. degree in Physics at the Université de Montréal, specialising in Astronomy and Astrophysics.

The summer following her B.Sc. degree, Érika did a science communication internship with the education and outreach team at the Université de Montréal's Trottier Institute for Research on Exoplanets. Her internship enabled her to carry out a wide range of activities. Not only was she co-host of ExoBite 7, but she also did much of the filming, directing, and editing of this video, as well as the ones in the "*Des exoplanètes et nous*" video series.

Since 2022, Érika has been pursuing her M.Sc. degree at the Université de Montréal under the supervision of Prof. Patrick Dufour. She is using computer programs to model a ring of small rocks around a white dwarf (a dead star), to find out what types of rock the ring is made of. The aim of this project is to better understand the composition of exoplanets and the evolution of planetary systems.

Étienne Artigau

Astrophysicist at the Université de Montréal, member of the Trottier Institute for Research on Exoplanets

Co-host of ExoBite 1: An exoplanet zoo



Étienne Artigau hails from Aylmer (now known as Gatineau), in the Outaouais region of Quebec. Since 2009, he has lived in the Côtes-des-Neiges borough of Montreal.

Étienne is an avid birder. For 39 years, he has devoted many of his weekends and vacations to observing and photographing birds of all kinds. He has almost reached the ambitious goal he set himself: to see every species of flamingo in the world! He only needs one more species to complete his collection: the Lesser Flamingo!

As a child, Étienne was already passionate about birdwatching, but also about stargazing. After secondary school, he studied Science at Cégep de l'Outaouais. He went on to earn a B.Sc. degree in Physics at the Université Laval in Quebec City. At the time, he loved his optics courses. He then wavered between Astronomy and Optics (another specialty in physics) for his graduate studies. In the end, his profession combined both: he designs instruments for telescopes!

For his M.Sc. degree, still at the Université Laval, he worked out the best way to observe the dimmer stars. He was particularly interested in brown dwarfs, which are a kind of failed star... or super planet! These fascinating objects have an intermediate mass between planets and stars and are often found alone in space, without a host star.

Étienne went on to earn his Ph.D. in Astrophysics at the Université de Montréal, under the supervision of Prof. René Doyon and Prof. Daniel Nadeau. During his studies, he built an infrared camera for the Observatoire du Mont-Mégantic. He named his camera CPAPIR (as in "*C'est pas pire!*"). His scientific interests also include the clouds of brown dwarfs.

After his Ph.D., Étienne worked for three years in Chile, at the Gemini-South Observatory. There, he helped get the NICI camera up and running, which is used, among other things, to search for exoplanets. He also continued his research on brown dwarfs.

Back at the Université de Montréal since 2009, he now works on various projects aimed at designing instruments for telescopes worldwide. He is one of two scientific leaders for the SPIRou (*SPectropolarimètre InfraROUge*) instrument installed on the Canada-France-Hawai'i Telescope. He is also in charge of the NIRPS (Near-Infrared Planet Searcher) instrument installed on a telescope in Chile and is part of the team for the NIRISS (Near-Infrared Imager and Slitless Spectrograph) instrument on the James Webb Space Telescope.

Frédérique Baron

Astrophysicist at the Observatoire du Mont-Mégantic and the Trottier Institute for Research on Exoplanets, Université de Montréal

Co-host of ExoBite 1: An exoplanet zoo and featured in the Des exoplanètes et nous video series



Frédérique Baron was born and raised in Longueuil, Quebec. She now lives in Montreal.

She loves birds, especially parakeets. She's an expert knitter and taught knitting classes in a specialty store for some time. She also loves baking cakes.

When she was younger, Frédérique loved collecting rocks. Her pockets were always filled with them!

After secondary school, she studied Science at Cégep Édouard-Montpetit, in Longueuil. She then obtained a B.Sc. degree in Physics at the Université de Montréal.

She then completed her M.Sc. degree at the Université de Montréal, under the supervision of Prof. David Lafrenière. She was interested in binary systems, composed of two stars revolving around each other. She discovered more than a dozen of them! These systems now bear her name: BFR01, BFR02, ("B" for Baron, and "FR" for "Frédérique")!

Finally, between 2014 and 2019, Frédérique completed her Ph.D. at the Université de Montréal. Under the supervision of David Lafrenière and Étienne Artigau, she searched for gas giant planets very far from their star using the direct imaging method. She observed around 180 stars, none of which had such exoplanets. A good way to develop patience... and to learn that these planets are very rare!

Since completing her Ph.D., Frédérique has been working at the Université de Montréal. She devoted a few years to science communication and education. Today, she works mainly on instrumentation projects for major observatories around the world. She also teaches an astronomy course at the University.

Jonathan Gagné

Scientific Advisor at the Montreal Planetarium and Adjunct Professor at the Université de Montréal, member of the Trottier Institute for Research on Exoplanets

Featured in the Des exoplanètes et nous video series



Jonathan Gagné hails from Val-David in the Laurentians. When he was younger, he was passionate about music; he was interested in both theory and composition.

After secondary school, Jonathan moved to Montreal to study Natural Sciences at Cégep Ahuntsic.

He then studied for a B.Sc. in Physics at the Université de Montréal. During his B.Sc. studies, he did several research internships, notably with Prof. René Doyon in Astrophysics. He loves teaching and transferring his knowledge to others. As early as his B.Sc. program, he taught a university course to students barely younger than himself!

Jonathan didn't do an M.Sc. degree; he went straight on to his Ph.D. after his B.Sc., at the same university. At the time, his main objective was to detect young brown dwarfs in our corner of the galaxy. Brown dwarfs are celestial objects that resemble Jupiter, but are heavier and not necessarily in orbit around a star.

Jonathan then spent three years as a postdoctoral researcher in Washington DC, USA, working at the Carnegie Institution for Science Research Center. During these years, he studied "rogue planets": stars similar to gas giant planets, but not orbiting a star. They are sometimes also called "planemos", from the term **plane**tary-**m**ass **o**bjects.

Today, Jonathan lives in the Maisonneuve borough of Montreal. He works as a Scientific Advisor at the Montreal Planetarium, where he continues to conduct research on his areas of interest. He is also an Adjunct Professor at the Université de Montréal and supervises a number of students who are also involved in research.

When he's not trying to unravel the secrets of stars, brown dwarfs, and rogue planets, he's trying to understand the mysteries of making great coffee! He has even written a book, translated into several languages, titled "The Physics of Filter Coffee"!

Lisa Đặng

Researcher at the Université de Montréal, member of the Trottier Institute for Research on Exoplanets

Co-host of ExoBite 2: Earth 2.0



Lisa Đặng grew up in the St-Michel borough of Montreal. She got to know many of the primary schools of Villeray and St-Michel as she changed schools 5 times! In her youth! She still lives in Montreal.

As the eldest child of a refugee family, Lisa's childhood consisted of looking after her little sister and cousins, learning about the culture and language of her host country through television, doing arts and crafts, and meeting her neighbourhood friends at the park.

Today, Lisa enjoys biking around town in the summer and cycling for cardio in winter. She also enjoys projects that require creativity like refurbishing old furniture or making origami! She is fascinated by languages and dialects and their impact on the way we communicate. She is fluent in French, English, and Vietnamese. She has also taken courses in Spanish and German, and loves learning new languages.

Lisa studied Pure and Applied Sciences at Dawson College. It was there that she discovered her interest in physics while she was taking an astrophysics course. Lisa went on to pursue a B.Sc. degree in Physics at McGill University.

She then did an M.Sc. degree at McGill University under the supervision of Prof. Nicolas Cowan, during which she studied light from exoplanets. During her M.Sc., she had the opportunity to complete an internship in California with NASA researchers. She then became interested in the climate (or weather!) of distant exoplanets during her Ph.D. studies at McGill University.

Today, Lisa is a postdoctoral researcher at the Université de Montréal. She has been awarded a number of prestigious fellowships to support her in this new phase of her career, including a Banting Fellowship offered by the Government of Canada.

Lison Malo

Astrophysicist at the Observatoire du Mont-Mégantic and the Trottier Institute for Research on Exoplanets, Université de Montréal

Co-host of ExoBite 6: The Modern Astronomer



Lison Malo was born in Longueuil, a city she affectionately calls "Longueuil Beach". She now lives in Laval.

Her greatest passion has always been astronomy. When she was younger, Lison also loved folk dancing. She was a member of the *Mutins de Longueuil* dancing troupe for 15 years! As a child, she also loved skating, a hobby she still enjoys, along with running.

After secondary school, Lison studied at Cégep André-Laurendeau, where she completed the International Baccalaureate Diploma program in Natural Sciences. She then continued her studies at the Université de Montréal, completing a B.Sc. degree in Physics. Like many others, Lison found this part of her studies very difficult. She wasn't the best in the group, but she worked extremely hard and did all the assignments to make sure she understood the concepts. During the summer, Lison worked at the *ASTROLAB du Parc national du Mont-Mégantic* to improve her skills in science communication.

She then went on to complete an M.Sc. degree, which she also did at the Université de Montréal. She worked with Prof. René Doyon, in close collaboration with Prof. David Lafrenière and Researcher Étienne Artigau. Her goal was to identify some of the least massive and youngest stars in the solar neighbourhood. To achieve this, she planned and carried out observations with several large telescopes around the world, including the Canada-France-Hawai'i Telescope in Hawai'i, as well as the Gemini-South Observatory and the Very Large Telescope in Chile. She has also observed extensively at the Observatoire du Mont-Mégantic in Quebec.

During her Ph.D., also at the Université de Montréal, Lison developed a mathematical method for finding and better understanding young, low-mass stars. This method also made it possible to predict their distance, a crucial parameter in the search for planets around these stars.

After her Ph.D., Lison accepted a position as an Astronomer at the Canada-France-Hawai'i Telescope. She spent three years there between 2014 and 2017, working on several projects to develop instruments. For the past few years, Lison has been back in Montreal, working on instrument projects for the Observatoire du Mont-Mégantic and some of the world's largest observatories.

Loïc Albert

Astrophysicist at the Trottier Institute for Research on Exoplanets, at the Université de Montréal
Co-host of ExoBite 6: The Modern Astronomer



Loïc Albert was born in France to Québécois parents. He grew up in the Saint-Sacrement neighbourhood of Quebec City and attended public secondary school. He then studied Pure Sciences at Cégep Garneau in Quebec City. After having moved about 15 times, he finally settled down in the Ahuntsic borough of Montreal in 2011.

As a child, Loïc was fascinated by space exploration, LEGO, hockey statistics, and television. Later on, he became interested in Dungeons & Dragons, video games, improvisation, astronomy, and computers.

His interest in astrophysics encouraged him to pursue a B.Sc. degree in Physics. He chose McGill University, far from home, for a change of scenery and to learn English.

He then went on to complete a M.Sc. degree in Astrophysics with Prof. Serge Demers at the Université de Montréal. His project was to classify hundreds of carbon stars (very bright giant stars at the end of their lives) found in the Magellanic Clouds — small galaxies close to our own.

For his Ph.D., still at the Université de Montréal, he built an infrared spectrograph, an instrument that breaks down the light of stars in order to study them. He was mainly interested in brown dwarfs — small stars not massive enough to shine like stars. Once his instrument was up and running, he was able to use it at the Canada-France-Hawai'i Telescope in the United States, to search for very young brown dwarfs in the Orion Nebula.

He then spent five fantastic years as an Astronomer at the Canada-France-Hawai'i Telescope, before returning to the Université de Montréal in 2010 to work on the NIRISS (Near-Infrared Imager and Slitless Spectrograph) instrument, which is now aboard the James Webb Space Telescope. He can now use this powerful observatory to learn more about brown dwarfs!

Loïc has recently discovered his passion for farming. He has purchased a piece of woodland and, in parallel with his work as an astronomer, is now learning the rudiments of country living.

Marie-Eve Naud

Astrophysicist and Science Communicator at the Trottier Institute for Research on Exoplanets at the Université de Montréal

Co-host of ExoBite 3: Alien Life and featured in the Des exoplanètes et nous video series



Marie-Eve Naud hails from Donnacona, in the Portneuf region of Quebec. She spent part of her life near the Université Laval in Quebec City. She has lived in the Villeray borough of Montreal for several years now.

Marie-Eve has always loved nature. When she was young, she loved making herbariums, concocting potions with flowers and plants, and collecting the treasures she found while strolling along the riverbank.

She has loved reading since she was a little girl, and still enjoys it. She's particularly fond of science fiction and books by Québécois authors. She also enjoys watercolour painting, yoga, and swimming.

After secondary school, Marie-Eve went on to study Natural Sciences at Cégep de Sainte-Foy in Quebec City. She loved this period of her life, learning so much about so many different subjects! She then began a degree in Engineering Physics at the Université Laval, before realising that it was Physics that really interested her and completing a B.Sc. degree in that discipline. Throughout her undergraduate years, Marie-Eve worked as a camp counsellor at an art, music, and science camp.

Marie-Eve completed an M.Sc. degree at the Université de Montréal, under the supervision of Prof. François Wesemael and Dr. Robert Lamontagne, an astrophysicist who is an expert in science communication. She was interested in the following question: "If an extraterrestrial civilization were to observe Earth, would it be able to tell that it was inhabited?" To answer this question, she used the telescope at the Observatoire du Mont-Mégantic, located in the Eastern Townships of Quebec. She determined that it would be possible to detect signs of life... but very difficult!

Marie-Eve went on to do a Ph.D. at the Université de Montréal, during which she searched for gas giant planets around the smallest stars using the direct imaging method. We suspected that these planets were rare, but Marie-Eve and her team were quite lucky! They found one: GU Piscium b, a particularly strange planet several times the mass of Jupiter (a "Super-Jupiter"!) and around 2,000 times further from its star than the Earth is from the Sun.

Since 2016, Marie-Eve has devoted herself to science education and outreach, mainly with the Trottier Institute for Research on Exoplanets. This work allows her to live her passion: sharing her sense of wonder for nature and space with young and old alike!

Marylou Fournier Tondreau

M.Sc. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets

Featured in the Des exoplanètes et nous video series



Marylou Fournier Tondreau grew up in Montmagny in Quebec. She has been living in Montreal since 2010, in the Plateau-Mont-Royal borough.

When she was young, Marylou was involved in artistic gymnastics. Today, she still enjoys many sports, including swimming, cycling, and running. She'd love to sign up for triathlons! She also enjoys playing the piano.

After secondary school, she studied Natural Sciences at the Centre d'études collégiales de Montmagny. She then moved to Montreal to study Pharmacy at the Université de Montréal.

She completed an undergraduate doctorate in Pharmacy and an M.Sc. degree in advanced pharmacotherapy, before working at the Sainte-Justine Hospital.

After three years working as a pharmacist, Marylou realised she had a real passion for astrophysics. In particular, she was keen to help answer the question "Are we alone in the Universe?" So she decided to return to university to study Physics.

Since 2021, she has been an M.Sc. student at the Université de Montréal, working with Prof. David Lafrenière. She is studying the atmospheres of two exoplanets that are very massive and very close to their star, the hot Jupiters HAT-P-18 b and WASP-52 b. She is using observations made with the NIRISS (Near-Infrared Imager and Slitless Spectrograph) instrument on the James Webb Space Telescope to study the stellar spots on the stars around which these planets revolve and learn more about them.

Nathalie Nguyen-Quoc Ouellette

Astrophysicist and Science Communicator, Deputy Director of the Trottier Institute for Research on Exoplanets and the Observatoire du Mont-Mégantic at the Université de Montréal

Co-host of ExoBite 5: Telescopes of the Future and ExoBite 7: A Cosmic Wink



Nathalie Nguyen-Quoc Ouellette was born in Montreal. She spent most of her childhood in the Ahuntsic-Cartierville borough of Montreal, as well as the town of Dollard-des-Ormeaux in the West Island. She still lives in Montreal, in the neighbourhood of Old Rosemont.

At a very young age, she already had a passion for science. She spent lots of time at the local library, reading books on dinosaurs, astronomy, and natural disasters. Nathalie loves animals, especially dogs and squirrels. She also loves puzzles, and enjoys solving Rubik's cubes or doing escape rooms!

After secondary school, Nathalie graduated from the Collège de Bois-de-Boulogne with a diploma in Sciences, Letters, and Arts. After taking a year off to work and travel, she went on to complete a B.Sc. degree in Physics at McGill University. During her B.Sc. degree, she had the chance to do research during summer internships. In particular, she tried to better understand galaxies and became interested in cosmology, the branch of astrophysics that studies the entire Universe.

She then continued her M.Sc. and Ph.D. studies at Queen's University in Kingston, Ontario. She studied the evolution of galaxies in a gigantic group called the Virgo Cluster, thanks to astronomical data from major observatories around the world. She is particularly interested in how these galaxies evolve, what they contain, and the effect their environment has on them.

With a keen interest in science communication, Nathalie worked as the Coordinator of the Queen's Observatory during her graduate studies, from 2010 to 2016. After completing a Certificate in Science Communication at Seneca College, she became the first Communications, Education and Outreach Officer at Queen's University's McDonald Institute in 2017, where she worked for a year.

Since 2018, Nathalie has been working at the Université de Montréal. She is now the Deputy Director of the Observatoire du Mont-Mégantic and the Trottier Institute for Research on Exoplanets. She also holds the position of Outreach Scientist for the Webb Telescope in Canada, in collaboration with the Canadian Space Agency.

Nicolas Cowan

Professor at McGill University, member of the Trottier Institute for Research on Exoplanets and the Trottier Space Institute

Co-host of ExoBite 2: Earth 2.0 and featured in the Des exoplanètes et nous video series



Nicolas Cowan was born in Cordoba, Argentina, to a Franco-Québécoise mother and an Anglo-Argentinian father. He eventually moved to Quebec and grew up on a farm in the Eastern Townships and in the suburbs of Montreal.

Today, he lives in Pointe-Saint-Charles, a neighbourhood in Montreal's Southwest borough.

When he was young, Nicolas practised karate. He even taught it for a few years! Nicolas is also an avid outdoorsman. He's particularly fond of rock climbing. In fact, he has developed a bouldering site at Mont Rigaud, in the Montérégie region.

Nicolas attended Vanier College, where he studied Pure and Applied Sciences. He then completed a B.Sc. degree in Physics at McGill University. At the time, there were no courses on exoplanets, and no one was doing any research on the subject in the Department of Physics. Having little interest in any other area of physics, he decided he didn't want to continue in physics!

So he moved to Seattle, USA, where he studied Astronomy at the University of Washington. As is very common in the United States, he did his M.Sc. and Ph.D. at the same time. At the time, he was using observations taken by a space telescope to study the atmosphere of exoplanets.

After obtaining his Ph.D., he became a Researcher at Northwestern University, a suburb of Chicago. He then took a position as Professor of Astronomy at Amherst College in Massachusetts, before securing a permanent faculty position at McGill, in the Department of Physics and the Department of Earth and Planetary Sciences.

Nicolas met his partner during his doctoral studies in astronomy. Together, they have a child. She is also a Professor at McGill, where she studies black holes. Nicolas is proud that they've managed to keep their family intact, even after several job changes and relocations!

Olivia Lim

Ph.D. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets

Guest on ExoBite 7: A Cosmic Wink



Olivia Lim grew up in the city of Saint-Hubert, on Montreal's South Shore. She now lives in the Rosemont - La Petite-Patrie borough of Montreal.

She loves playing music. She has been playing the drums for several years and is now learning to play the guitar. When she was younger, Olivia enjoyed going swimming, feeding squirrels, and building virtual houses in the video game *The Sims*.

Olivia completed her college studies at Cégep Édouard-Montpetit in Pure and Applied Sciences. In 2019, she graduated from the Université de Montréal with a B.Sc. degree in Physics. After her first year of undergraduate studies, Olivia did a summer internship with Prof. Jason Rowe, a specialist of the Kepler Space Telescope which has led to the discovery of thousands of exoplanets. The following summer, she studied small stars at the Université de Montréal with Prof. René Doyon and astrophysicist Lison Malo, as well as with astrophysicist Pascal Fouqué at the Canada-France-Hawai'i Telescope in the United States. During her third summer, she did a final internship at the Royal Military College of Canada in Ontario, where she studied very massive stars.

After her B.Sc. degree, Olivia went straight on to her Ph.D. in Astrophysics, without doing a M.Sc. degree. This option is open to certain people who have an excellent academic record and are committed to their decision to pursue astrophysical research.

Olivia is currently enrolled in a doctoral program under the supervision of Prof. René Doyon, also at the Université de Montréal. She is studying the planetary system of the small star TRAPPIST-1, which includes seven rocky exoplanets comparable in size to Earth. She has managed to secure observing time with the James Webb Space Telescope (a very competitive process!) to observe these potentially habitable planets. Using these and other telescope observations, she is examining the characteristics of the planets in this fascinating system.

René Doyon

Astrophysicist, Professor in the Department of Physics at the Université de Montréal, Director of the Trottier Institute for Research on Exoplanets and the Observatoire du Mont-Mégantic

Co-host of ExoBite 5: Telescopes of the Future



René Doyon hails from the city of Thetford in Quebec. When he was younger, he played the violin and the saxophone.

After secondary school, René went on to study Pure Sciences at Cégep de Thetford. It was during this time that his interest in science, and astrophysics in particular, was solidified.

He went on to earn a B.Sc. and a M.Sc. degree in Physics at the Université de Montréal. He then spent three years in England doing a Ph.D. in Astrophysics at the Imperial College, University of London. During this time, he studied galaxies.

Today, as a Professor at the Université de Montréal, he is particularly interested in exoplanets and the search for life in the Universe.

René is also the Director of the Observatoire du Mont-Mégantic, home to the largest professional telescope on the East Coast of North America. It's also a place where many specialised instruments are designed. These instruments are destined to be installed at large observatories located around the world and in space. One very important project that René and his team have been working on for over 20 years is an instrument called NIRISS (Near-Infrared Imager and Slitless Spectrograph), aboard the James Webb Space Telescope. René also works on two instruments called SPIRou (an acronym that stands for "*SPectropolarimètre InfraROUge*", and refers to a popular comic strip!) and NIRPS (for Near-Infrared Planet Searcher), installed on telescopes in the United States and Chile. One of the aims of all these instruments is to gain a better understanding of exoplanets.

To carry out all these projects, René created the Trottier Institute for Research on Exoplanets in 2014, which now includes over 60 astronomers, engineers, technicians, and education and outreach specialists based at five institutions in Quebec. He loves working with all these people, who are all trying to learn more about distant worlds.

René loves his work as an astronomer, and considers himself privileged to live in an era when we are so close to finally answering one of the greatest questions of all: "Are we alone in the Universe?" When his head isn't in the stars, René enjoys hockey, gardening, and tinkering at his cottage in the country.

Thomas Vandal

Ph.D. Student at the Université de Montréal and the Trottier Institute for Research on Exoplanets

Featured in the Des exoplanètes et nous video series



Thomas Vandal hails from Shawinigan, in the Mauricie region of Quebec. He currently lives in the Villeray borough of Montreal.

Thomas has been a big fan of sports since primary school. He enjoys team sports like soccer and basketball, as well as individual sports like track and field. These days, Thomas enjoys running and walking in the forest in his free time.

Space has fascinated him ever since he was a child. At school, he took part in many astronomy-related projects. In Secondary 3, he spent a day with Université de Montréal's Prof. David Lafrenière. He found it fascinating that astronomers are able to observe planets outside the Solar System with such great precision!

After secondary school, Thomas studied Natural Sciences at the Cégep de Shawinigan. He then went on to study Physics at McGill University, a subject he had been very interested in since secondary school.

During his undergraduate studies, Thomas spent two summers working on a research project to determine the mass of two gas-giant exoplanets by measuring the speed of their star. This star, Beta Pictoris, is almost twice as massive as the Sun! It's also much younger... for a star! It is thought to be between 8 and 20 million years old.

Since 2020, Thomas has been working on his Ph.D. at the Université de Montréal. He's looking to detect gas-giant exoplanets and study their atmospheres, using the James Webb Space Telescope and the SPIRou (*SPectropolarimètre InfraROUge*) and NIRPS (Near-Infrared Planet Searcher) instruments on the Canada-France-Hawai'i Telescope in the United States and at the La Silla Observatory in Chile, among others.