

Hugo Schérer^(he/him)

Graduate Student in Physics - Trottier Space Institute

📍 McGill University; Montreal, Canada

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🌐 <https://schhug.github.io/website>

🔗 <https://katelinschutz.com/group>



Research interests

Cosmology — Astroparticle physics — Dark Matter — High-Energy Physics Phenomenology
Finite Temperature Field Theory

Education

2024 – now	Doctor of Philosophy (Ph.D.) in Physics , McGill University Supervisor: Prof. Katelin Schutz Thesis: (TBD)	
2022 – 2024	Master of Science (M.Sc.) in Physics , McGill University Supervisors: Prof. Katelin Schutz and Prof. Oscar Hernández Thesis: Finite temperature field theory for the masses	GPA: 4.0/4.0
2019 – 2022	B.Sc. in Physics and Computer Science , Université de Montréal Research advisor: Prof. Luc Vinet Final project: Perfect transfer and almost perfect momentum transfer in mass-spring chains	GPA: 4.3/4.3
2014 – 2016	M.Sc. in Advanced Pharmacotherapy , Université de Montréal & CHU Sainte-Justine Supervisors: Prof. Jean-François Bussi�res (academic), Prof. Ema Ferreira (clinical) Project: Self-Administered Medications in the Postpartum Wards: A Study on Satisfaction and Perception	
2010 – 2014	Undergraduate Doctor of Pharmacy (Pharm.D.) Universit� de Montr�al	
2008 – 2010	Diploma of College Studies - Natural Sciences Coll�ge de Bois-de-Boulogne	

Teaching Experience

2024	Teaching assistant , McGill University PHYS320 - Introductory Astrophysics	Fall 2024
2021 – 2022	Teaching assistant , Universit� de Montr�al PHY1620 - Ondes et vibrations PHY1901 - M�canique et physique moderne PHY1902 - �lectricit� et optique	Winter 2022 Fall 2021 Winter 2021
2016 – 2024	Associated Clinician , Universit� de Montr�al Supervision of pharmacy students and pharmacy residents at CHU Sainte-Justine	
2009 – 2010	Science tutor , Coll�ge de Bois-de-Boulogne	

Awards and Honour

2024	Vanier Canada Graduate Scholarships Natural Sciences and Engineering Research Council of Canada (NSERC)	150 000 \$CAD
2024	(Declined) Canada Graduate Scholarships - Doctoral Natural Sciences and Engineering Research Council of Canada (NSERC)	105 000 \$CAD
2023	Bourse d'excellence en sciences de l'informatique, en génie informatique et de la construction des ordinateurs et en génie électrique, électronique et des communications du ministère de l'Enseignement supérieur Département d'informatique et de recherche opérationnelle (DIRO), Université de Montréal	1000 \$CAD
2023	Master research scholarships Fonds de recherche du Québec - Nature et technologies (FRQNT)	37 500 \$CAD
2022	Prix Georges-Baril Université de Montréal	2000 \$CAD
2022	Lorne Trottier Science Accelerator Fellowships McGill University	5000 \$CAD
2022	McGill Space Institute Graduate Fellowship McGill University	2000 \$CAD
2022	Governor General's Academic Silver Medal Université de Montréal	Silver medal
2022	(Declined) Canada Graduate Scholarships - Master's program Natural Sciences and Engineering Research Council of Canada (NSERC)	17 500 \$CAD
2022	(Declined) MSc Excellence Scholarships Institut de valorisation des données (IVADO)	40 000 \$CAD
2022	Bourse d'excellence en sciences de l'informatique, en génie informatique et de la construction des ordinateurs et en génie électrique, électronique et des communications du ministère de l'Enseignement supérieur Département d'informatique et de recherche opérationnelle (DIRO), Université de Montréal	1000 \$CAD
2022	Supplements of the NSERC Undergraduate Student Research Awards Fonds de recherche du Québec - Nature et technologies (FRQNT)	1500 \$CAD
2021	Undergraduate Student Research Award Natural Sciences and Engineering Research Council of Canada (NSERC)	6000 \$CAD
2020	Bourse du doyen de la FAS Université de Montréal	2000 \$CAD

Professional Experience

- 2016 – 2024 **Pharmacist**, CHU Sainte-Justine
Full-time position: 2016 - 2019; part-time position: 2019 - 2024
Member of the Research Ethics Board (2016 - 2019)
- 2022 **Research Intern**, McGill University
Summer internship. Supervisor: Prof. Katelin Schutz
- 2021 **Research Intern**, Université de Montréal
Summer internship. Supervisor: Prof. Luc Vinet
- 2014 – 2018 **Pharmacist**, Patrick Bouchard & Mathieu-Charles Léger Pharmacy

Outreach and Community Engagement

- 2021 – 2022 **Member of Diversité Physique (D-PHY)**, the committee on equity, diversity and inclusion at the Department of Physics of Université de Montréal
- 2020 – 2021 **Secretary** of the Board of Directors of the Association des étudiants et étudiantes en physique de l'Université de Montréal (PHYSUM)
- 2012 – 2013 **Secretary** of the Pharm.D. Local Executive Team of the Association des étudiants en pharmacie de l'Université de Montréal (CEL-Pharm.D. AÉPUM)
- 2009 – 2010 **Volunteer first aid worker** at Collège de Bois-de-Boulogne

Scientific Publications and Talks in Physics

Peer-reviewed Publications

- ✉ **Schérer H**, Schutz K. Photon self-energy at all temperatures and densities in all of phase space. [Journal of High Energy Physics 2024, 139 \(2024\)](#), [arXiv:2405.18466](#) .
- ✉ **Schérer H**, Vinet L, Zhedanov A. Analytic “Newton’s cradles” with perfect transfer and fractional revival. [Annals of Physics 439, 168790 \(2022\)](#), [arXiv:2108.09386](#) .
- ✉ **Schérer H**, Vinet L, Zhedanov A. A classical model for perfect transfer and fractional revival based on q -Racah polynomials. [Physics Letters A 431, 127973 \(2022\)](#), [arXiv:2110.01042](#) .

Talks

- ✉ **Photon self-energy at all temperatures and densities in all of phase space**
HEP Theory Journal Club, Department of Physics, McGill University (October 2nd 2024)
- ✉ **The Photon Self-Energy and its Implications for Dark Matter Searches**
Cosmo-ph, Trottier Space Institute, McGill University (September 27th 2024)
- ✉ **The Photon Self-Energy and its Implications for Dark Matter Searches**
Center for research in astrophysics of Quebec (CRAQ) Annual Meeting (May 8th 2024)
- ✉ **The Photon Self-Energy and its Implications for Dark Matter Searches**
61st Winter Nuclear and Particle Physics Conference (WNPPC) (February 18th 2024)

Scientific Publications and Talks in Physics (continued)

📖 Cosmological Searches for the Dark Photon

Center for research in astrophysics of Quebec (CRAQ) Annual Meeting (May 9th 2023)

📖 Perfect state transfer and classical Newton's cradle-like system

Summer physics interns conferences, Physics department, Université de Montréal (June 30th 2021)

Scientific Publications, Posters and Talks in Pharmacy

Peer-reviewed Publications

- Lessard JJ, Caron E, **Schérer H**, Forest JM, Leclair G. Compatibility of Y-Site Injection of Meropenem Trihydrate With 101 Other Injectable Drugs. [Hospital Pharmacy](#). 2020;55(5):332-337.
- **Schérer H**, Bernier E, Rivard J, Yu L, Duchesne-Côté G, Lebel D, Bussi res JF, Ferreira E. Self-Administered Medications in the Postpartum Wards: A Study on Satisfaction and Perception. [J Eval Clin Pract](#). 2017;23(3):540-547.
- Vincent-Tremblay M, **Schérer H**. Traitement d'une tumeur de Wilms r fractaire chez l'adulte. [Pharmactuel](#). 2016;49(4):241-7.

Other Publications

- Duchesne-C  t   G, **Schérer H**, Rivard J, Bernier E, Yu L, Bussi res JF, Ferreira E. Enqu  te sur l'usage de l'autom  dication aupr  s des professionnels de la sant   du CHU Sainte-Justine. [Pharmactuel](#). 2016;49(2):115-21.
- **Schérer H**, Duchesne-C  t   G, Thibault M, Atkinson S, Bussi res JF. M  dicaments en possession des patients :   tat des lieux, audits et changements de pratique. [Pharmactuel](#). 2016;49(1):56  60.

Posters

- **Schérer H**, Duchesne-C  t   G, Thibault M, Atkinson S, Bussi res JF. M  dicaments en possession des patients :   tat des lieux, audits et changements de pratique. [Pharmactuel](#) 2016;49(3): Congr  s annuel. (Congr  s annuel de l'A.P.E.S.; Trois-Rivi  res, CAN, 2016)
- Duchesne-C  t   G, **Schérer H**, Rivard J, Bernier E, Yu L, Lebel D, Bussi res JF, Ferreira E. Enqu  te sur l'usage de l'autom  dication aupr  s des professionnels de la sant   du CHU Sainte-Justine. [Pharmactuel](#) 2016;49(3): Congr  s annuel. (Congr  s annuel de l'A.P.E.S.; Trois-Rivi  res, CAN, 2016)
- **Schérer H**, Bernier E, Rivard J, Yu L, Duchesne-C  t   G, Lebel D, Bussi res JF, Ferreira E. Self-Administered Medication in the Postpartum Wards: A Study on Satisfaction and Perceptions. Poster presented at: Rendez-vous de la recherche pharmaceutique de la Facult   de pharmacie de l'Universit   de Montr  al (Montr  al, CAN, 2015)
- Rivard J, **Schérer H**, Bernier E, Duchesne-C  t   G, Yu L, Lebel D, Bussi res JF, Ferreira E. AUTOMED 1 : Autom  dication aux unit  s d'accouchement d'un centre tertiaire en obst  trique et m  re-enfant, une   tude de cohorte. [Pharmactuel](#) 2015;4(3): Congr  s annuel. (Congr  s annuel de l'A.P.E.S.; Qu  bec, CAN, 2015)
- Yu L, Rivard J, Bernier E, Duchesne-C  t   G, **Schérer H**, Lebel D, Ferreira E, Bussi res JF. AUTOMED 2 : Enqu  te sur l'usage de l'autom  dication au sein des centres hospitaliers canadiens. [Pharmactuel](#) 2015;4(3): Congr  s annuel. (Congr  s annuel de l'A.P.E.S.; Qu  bec, CAN, 2015)

Scientific Publications, Posters and Talks in Pharmacy (continued)

Talks

- **La tri-thérapie, une révolution pour le traitement de la fibrose kystique?**
29e Journée de Pharmacothérapie du CHU Sainte-Justine, CHU Sainte-Justine (2019)
- **Prise en charge des nouvelles infections SARM en FK**
Pulmonology service meeting, CHU Sainte-Justine (2018)
- **Protocole d'éradication du Pseudomonas**
Pulmonology service meeting, CHU Sainte-Justine (2018)
- **Projets de résidence en pharmacie sur l'automédication aux unités mère-enfant**
Obstetrics-Gynaecology department meeting, CHU Sainte-Justine (2016)
- **La prophylaxie antibiotique chez les enfants avec un reflux vésico-urétéral**
Pharmacy resident seminars, Faculty of Pharmacy, Université de Montréal (2015)
- **Les médicaments en possession des patients**
Soirée des controverses de gestion, Faculty of Pharmacy, Université de Montréal (2015)