



The Abdus Salam
**International Centre
for Theoretical Physics**
Physics Without Frontiers




Physics Latam
ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATHEMATICS

Physics LATAM

Advanced Lectures on
Theoretical Physics & Mathematics

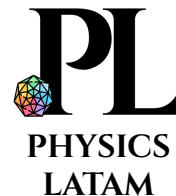
ICTP Physics Without Frontiers

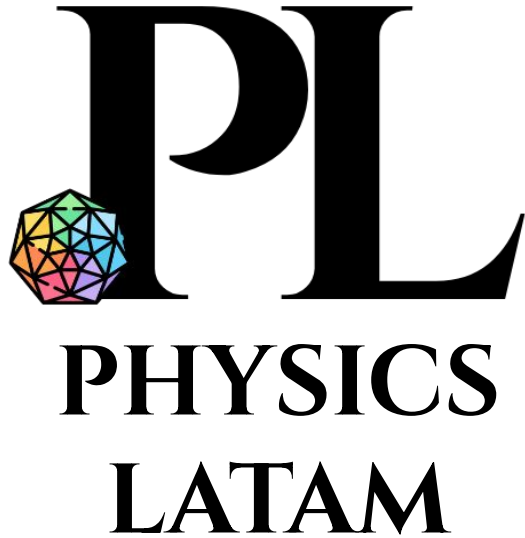
Social media:

 [@PhysicsLatam](https://twitter.com/PhysicsLatam)
 [@PhysicsLatam](https://www.instagram.com/PhysicsLatam)
 facebook.com/PhysicsLatam
 youtube.com/@PhysicsLatam
 physicslatam.com/mailling-list

Daniel Galviz

(Yau Mathematical Science Center, Tsinghua University)





Physics LATAM is a non-profit project founded by Danie Galviz in 2022 with support from the ICTP - Physics Without Frontiers, aimed at promoting the education and research of theoretical physics and mathematics in **Latin America** developing countries.

It provides online advanced lectures, workshops, seminars, and online resources to students and researchers facing socioeconomic barriers to accessing quality education.

The project aims to build a strong and diverse network of physicists and mathematicians around **Latin America** the world who can make meaningful contributions to the advancement of science worldwide.

Overview

- Courses and mini courses on Theoretical Physics & Math.
- Students from across Latin America & developing countries!
- Mini-course led by professors.
- All activities are conducted online.
- We strive for gender balance in all our activities!
- Lectures and seminars are available in Spanish or English.
- Every course has assignments, seminars and a final exam.
- Reach over 700+ students!

ICTP The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 14TH 2022 TO 10-12AM

QUANTUM FIELD THEORY

LECTURER: DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
BCTP (BONN UNIVERSITY)

LECTURER: DANIEL GALVIZ
YMSC (Tsinghua University)
ICTS (Tata Institute of Fundamental Research)

INTRODUCTORY MASTER CLASS ON QFT
PROF. FREDDY CACHAZO
(DEBRMETER INSTITUTET)

Physics Latin is committed to building an environment that is inclusive, non-discriminatory, and welcoming of diverse individuals. We especially encourage the participation of women, LGBTQ+, and other underrepresented groups.

Website: <https://indico.ictp.it/event/10094/>

Applications until 15th August:
<https://forms.gle/7wV1k4aD8e8m8P82>

ICTP The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 15TH 2023 TO 10-12 (GMT+8)

GEOMETRY AND TOPOLOGY IN PHYSICS

LECTURER: DANIEL GALVIZ
YMSC (Tsinghua University)
ICTS (Tata Institute of Fundamental Research)

LECTURER: DANIEL GALVIZ
YMSC (Tsinghua University)
ICTS (Tata Institute of Fundamental Research)

SPECIAL GUEST LECTURERS

Prof. Anahita Fotouhi (Central Univ. of Venezuela)
Prof. Mauricio Rago (Tonghua University)
Prof. Alessandro Tomasiello (University of Illinois Urbana-Champaign)

Prof. Nicolai Behteshkin (Tsinghua University, UC Berkeley)
Prof. Xenia de la Ossa (University of Oxford)
Prof. Nikita Nekrasov (Shenyang Institute of Technology, Simons Center for Geometry and Physics)

Physics Latin is committed to building an environment that is inclusive, non-discriminatory, and welcoming of diverse individuals. We especially encourage the participation of women, LGBTQ+, and other underrepresented groups.

Website: <https://indico.ictp.it/event/10094/>

Applications until 28th February:
<https://forms.gle/7wV1k4aD8e8m8P82>

Physics Latin ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

THE Abdus Salam International Centre for Theoretical Physics

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

21 OCTOBER - 30 NOVEMBER 2024

Classical & Quantum Black Holes

LECTURER: RUBEN CAMPOS
LEIBNIZ UNIVERSITÄT HANNOVER

GUEST LECTURER: MIGUEL MONTERO
ICT MADRID

MASTER CLASS ON ENTANGLEMENT AND EMERGENCE OF GRAVITATIONAL SPACETIME

2024 Dirac Medal winner
Prof. Tadashi Takayanagi
MASAHIRO TAKAHASHI (RIKEN ADVANCED INSTITUTE FOR PHYSICS AND CHEMISTRY)

Physics Latin is committed to building an environment that is inclusive, non-discriminatory, and welcoming of diverse individuals. We especially encourage the participation of women, LGBTQ+, and other underrepresented groups.

Website: <https://ohv.physicslatam.com/hb/2024>

Applications until 05th October:
<https://forms.gle/7wV1k4aD8e8m8P82>

PL PHYSICS LATAM

GENERAL RELATIVITY & COSMOLOGY

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

June 03 - August 31, 2024 (Online Mode)

GUEST SPEAKERS

- Parasuraman Ajith (ICTP)
- Jan de Boer (University of Amsterdam)
- Diego Cereceda (ICTP)
- Paolo Creminelli (ICTP)
- Atish Dabholkar (ICTP)
- Wei Song (NSC, Tsinghua University)

LECTURERS

- Esterlin Chulabud (UP, University of Canada)
- Daniel Galviz (YMSC, Tsinghua University)

ASSISTANTS

- Lina Castellano (Newcastle University)
- Bianca Haragata (University of Exeter)

ORGANIZER

- Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSE
Gravity Waves (Physics Latin)

OTHER COURSES 8-2024
Quantum Field Theory I
Commutative Algebra

APPLY
[www.physicslatam.com/tpa](https://physicslatam.com/tpa)
Deadline: 24 May 2024

Full list at: [Physics Latin](https://physicslatam.com/tpa)

Physics Latin is committed to building an environment that is inclusive, non-discriminatory, and welcoming of diverse individuals. We especially encourage the participation of women, LGBTQ+, and other underrepresented groups.

Website: <https://indico.ictp.it/event/10094/>

PL PHYSICS LATAM

QUANTUM FIELD THEORY I

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

09 Sept. 2024 - 31 Jan. 2025 (Online Mode)

GUEST SPEAKERS

- Bianca Ditrich
- Zohar Komargodski (ICTP)
- Enrico Pajer (ICTP)
- Matthew Reece (ICTP)
- Kasia Rejzner (ICTP)
- David Wallace (ICTP)
- Edward Witten (ICTP)

LECTURER

- Santiago Agui Salgado (DAMTP, University of Cambridge)

ASSISTANTS

- Isa Delfino (SISSA)
- Kasia Rejzner (ICTP)
- Giulia Villa (DAMTP, University of Cambridge)

ORGANIZER

- Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSES
Full list at: [Physics Latin](https://physicslatam.com/tpa)

OTHER COURSES 8-2024
Theoretical Particle Physics I
Commutative Algebra

APPLY
[www.physicslatam.com/tpa](https://physicslatam.com/tpa)
Deadline: 20 April 2024

Full list at: [Physics Latin](https://physicslatam.com/tpa)

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Website: <https://indico.ictp.it/event/10094/>

PL PHYSICS LATAM

THEORETICAL PARTICLE PHYSICS

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

09 Sept. 2024 - 31 Jan. 2025 (Online Mode)

GUEST SPEAKERS

- Carlos Argüelles-Delgado (ICTP)
- Bianca Ditrich
- Zohar Komargodski (ICTP)
- Mysthen Mondragon (ICTP)
- Andrés Puhm (ICTP)
- Enrico Pajer (ICTP)

LECTURER

- Esterlin Chulabud (UP, University of Canada)

ASSISTANTS

- Maria Fariñas Zamora (ICTP)
- Jonathan Isaacs May (University of Texas at Austin)

ORGANIZER

- Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSES
Full list at: [Physics Latin](https://physicslatam.com/tpa)

OTHER COURSES 8-2024
Quantum Field Theory I
Commutative Algebra

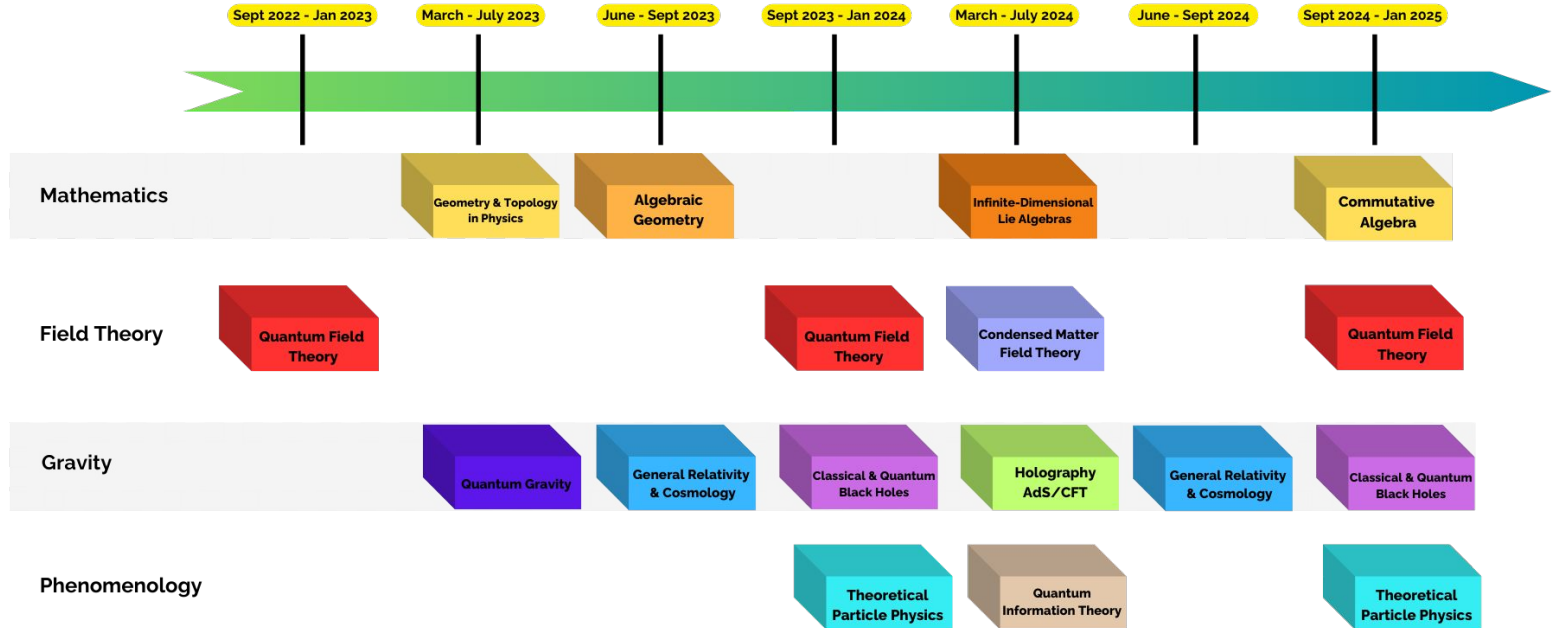
APPLY
[www.physicslatam.com/tpa](https://physicslatam.com/tpa)
Deadline: 20 August 2024

Full list at: [Physics Latin](https://physicslatam.com/tpa)

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Website: <https://indico.ictp.it/event/10094/>

Physics Latam



Past courses 2022, 2023 and 2024

International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 14TH 2022 | 10-12AM

QUANTUM FIELD THEORY

LECTURER: DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (BOHN UNIVERSITÄT)

LECTURER: DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (BOHN UNIVERSITÄT)

INTRODUCTORY MASTER CLASS ON QFT
PROF. HUBEN CAMPOS DELGADO
(BOHN UNIVERSITÄT)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

30 Students

International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 7TH 2022 | 10-12 AM

Quantum Gravity

LECTURER: HUBEN CAMPOS DELGADO
ICTP (UNIVERSITÄT BOHN)

THE COURSE WILL BE TAUGHT BY EXPERTS
EVERYONE IS INVITED TO ATTEND & APPLY

INTRODUCTORY MASTER CLASS
PROF. IBENE VALTEZUELA
ICTP (UNIVERSITÄT BOHN)

PROF. JASTON GIURTI
NEWYORK UNIVERSITY, USA

PROF. JUAN PEDRAZA
NEWYORK UNIVERSITY, USA

PROF. ROBERTO OROZCO
ICTP (BOHN UNIVERSITÄT)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

30 Students

International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 15TH 2023 | 10-12 AM

GEOMETRY AND TOPOLOGY IN PHYSICS

LECTURER: DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

SPECIAL GUEST LECTURERS
Prof. Jostein Rindler-Schjerve
University of Oslo, Norway

Prof. Michael Reineke
University of Bonn, Germany

Prof. Shrawan Kumar
University of Cambridge, UK

Prof. Andrei Moroianu
University of Geneva, Switzerland

Prof. Mihail Mihailescu
University of Geneva, Switzerland

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

40 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

From 2nd June 2023 | 10-12 AM

GENERAL RELATIVITY AND COSMOLOGY

LECTURERS: ESTEBAN CHALBAUD
UNIVERSITY OF GENOVA

DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

INTRODUCTORY MASTER CLASS
Prof. Fernando Quevedo
University of Valencia, Spain

Prof. Alejandra Castro
Bristol University of Canada

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

60 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICANS

Organised by Physics LatAm

Online

Mini Course ALGEBRAIC GEOMETRY

Daniel Galviz
Francisco Villalca

August 2023
1st - 31st

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

30 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

24 OCT. - 16 NOV. 2023 | 15-17 AM

Classical & Quantum Black Holes

LECTURER: HUBEN CAMPOS DELGADO
ICTP (UNIVERSITÄT BOHN)

GUEST LECTURER: THOMAS HARTMAN
CORNELL UNIVERSITY

THE MINI COURSE WILL BE HELD IN ENGLISH
EVERYONE IS INVITED TO ATTEND & APPLY

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

20 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 13TH 2023 | 10-12AM

QUANTUM FIELD THEORY I

LECTURER: DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

INTRODUCTORY MASTER CLASS ON QFT
PROF. JUAN MALDACENA
IAS (PRINCETON STUDY)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

60 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 12TH 2023 | 10-12AM

THEORETICAL PARTICLE PHYSICS

LECTURERS: ESTEBAN CHALBAUD
UNIVERSITY OF GENOVA

DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

INTRODUCTORY MASTER CLASS
PROF. LUIS ALVAREZ-GAUME
SINAI CENTER

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

40 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS AND MATHEMATICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

MARCH 18 - JULY 31, 2024, ONLINE

CONDENSED MATTER FIELD THEORY

PHYSICS LATAM

Guest Speakers: Prof. Jostein Rindler-Schjerve
University of Oslo, Norway

Prof. Michael Reineke
University of Bonn, Germany

Prof. Shrawan Kumar
University of Cambridge, UK

Prof. Andrei Moroianu
University of Geneva, Switzerland

Prof. Mihail Mihailescu
University of Geneva, Switzerland

Prof. Daniel Galviz
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

20 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS AND MATHEMATICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

MARCH 18 - JULY 31, 2024, ONLINE

QUANTUM INFORMATION THEORY

PHYSICS LATAM

Guest Speakers: Prof. Jostein Rindler-Schjerve
University of Oslo, Norway

Prof. Michael Reineke
University of Bonn, Germany

Prof. Shrawan Kumar
University of Cambridge, UK

Prof. Andrei Moroianu
University of Geneva, Switzerland

Prof. Mihail Mihailescu
University of Geneva, Switzerland

Prof. Daniel Galviz
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

40 students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS AND MATHEMATICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

MARCH 18 - JULY 31, 2024, ONLINE

INFINITE-DIMENSIONAL LIE ALGEBRAS

PHYSICS LATAM

Guest Speakers: Prof. Jostein Rindler-Schjerve
University of Oslo, Norway

Prof. Michael Reineke
University of Bonn, Germany

Prof. Shrawan Kumar
University of Cambridge, UK

Prof. Andrei Moroianu
University of Geneva, Switzerland

Prof. Mihail Mihailescu
University of Geneva, Switzerland

Prof. Daniel Galviz
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

20 Students

International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS AND MATHEMATICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

MARCH 18 - JULY 31, 2024, ONLINE

GAUGE/GRAVITY DUALITY

PHYSICS LATAM

Guest Speakers: Prof. Jostein Rindler-Schjerve
University of Oslo, Norway

Prof. Michael Reineke
University of Bonn, Germany

Prof. Shrawan Kumar
University of Cambridge, UK

Prof. Andrei Moroianu
University of Geneva, Switzerland

Prof. Mihail Mihailescu
University of Geneva, Switzerland

Prof. Daniel Galviz
YMSC (TSINGHUA UNIVERSITY)
ICTP (TECH INSTITUTE OF FUNDAMENTAL RESEARCH)

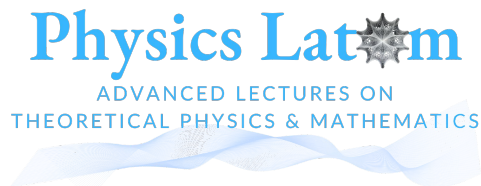
APPLICANTS UNTIL 25th FEBRUARY
WWW.PHYSICSLATAM.COM

30 Students

Students cannot take more than one course at a time.

Volunteers in 2024

- Lecturers: 9
- Teaching Assistants: 15
- Project Assistants: 2



Daniel Galviz

YMSC (Tsinghua University, CN)
ICTS (Itaú Institute of Fundamental Research, IN)

Contributions
Founder and Lecturer



Esteban Chalbaud

LIP-Coimbra
(University of Coimbra, PT)

Contributions
Lecturer for Theoretical Particle Physics 2023/2024
Co-organizer of Physics 4Night Seminars Lecturer for General Relativity & Cosmology 2023/2024



Ruben Campos

ITP-Leibniz Universität Hannover

Contributions
Lecturer for Black Holes mini-course 2023/2024
Lecturer for Quantum Gravity 2023
TA for Quantum Field Theory 2022



Jiayi Cao (Jesse)

(University of Cambridge, UK)

Contributions
Co-organizer of Math & HEP Seminars



Mateo Moreno

(University of Cologne, DE)

Contributions
Lecturer for Condensed Matter Field Theory 2024



José Polo-Gómez

AMATH Dept. & IQC, UJ. of Waterloo, CA)
(Perimeter Institute, CA)

Contributions
Lecturer for Quantum Information Theory 2024



Sebastian Schlegel

(Max Planck for Mathematics, DE)

Contributions
Lecturer for Infinitesimal-dimensional Lie algebras 2024



Robinson Mancilla

(UC Santa Barbara, USA)

Contributions
Lecturer for Gauge/Gravity Duality 2024



Aitor Iribar Lopez

(ETH Zurich, CH)

Contributions
Lecturer for Commutative Algebra course 2024



Santiago Agüi

(DAMTP, University of Cambridge)

Contributions
Lecturer for Quantum Field Theory course 2024



María Preciado

(UC - U Waterloo, CA)

Contributions
TA for Quantum Information Theory 2024



Miroslava Mossol

(Lithuanian Gutenberg University of Mainz, DE)

Contributions
Organizer of Conference for Women in Physics 2024
TA for Geometry and Topology in Physics 2023



Christian Forero

(SISSA)

Contributions
TA for Commutative Algebra course 2024



Isai Davila

(SISSA)

Contributions
TA for Quantum Field Theory course 2024



Gonzalo Villa

(DAMTP, University of Cambridge)

Contributions
TA for Quantum Field Theory course 2024



Marta Fuentes

(IFT Madrid)

Contributions
TA for Theoretical Particle Physics course 2024



Fabiola Cañete

(Stony Brook University, USA)

Contributions
TA for Quantum Information Theory 2024
Organizer of Conference for Women in Physics 2024



Jonathan Lozano

(University of Texas at Austin)

Contributions
TA for Theoretical Particle Physics course 2024



Sergio Aguilar

(KU Leuven)

Contributions
TA for Gauge/Gravity Duality 2024



Marti Berenguer

(Universidad de Santiago de Compostela)

Contributions
TA for Gauge/Gravity Duality 2024



Daniel Bermudez

(IHCM - University of Bonn)

Contributions
TA for Infinite-dimensional Lie Algebra 2024



Blanca Hergueta

(Universität zu Köln)

Contributions
TA for General Relativity & Cosmology 2024



Lina Castiblanco

(Newcastle University)

Contributions
TA for General Relativity & Cosmology 2024



Ronald Cortes

(SISSA, IT)

Contributions
TA for Condensed Matter Field Theory 2024



Weyner Ccuiro

(SISSA, IT)

Contributions
TA for Condensed Matter Field Theory 2024

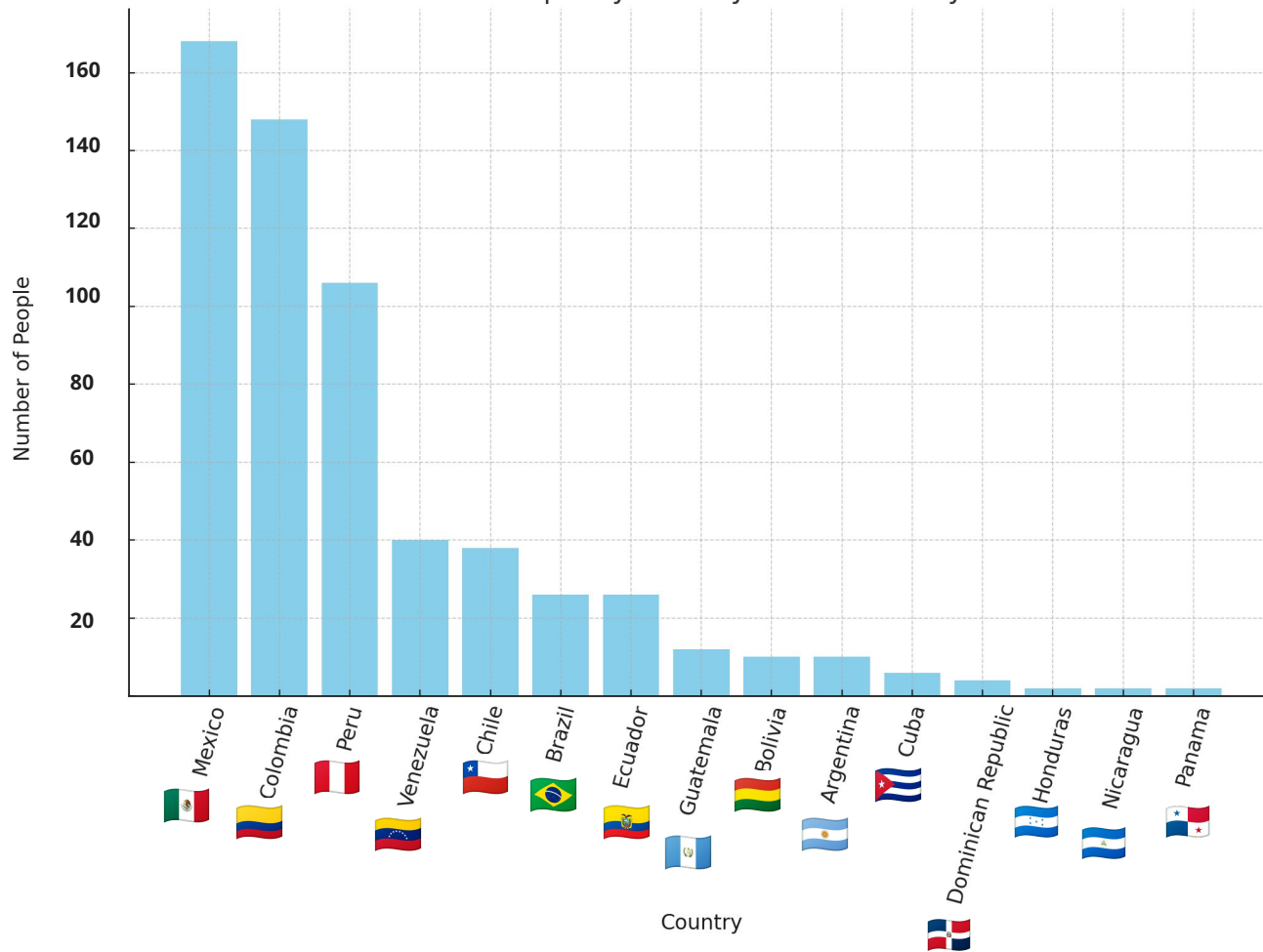


The Abdus Salam
**International Centre
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Physics Without Frontiers



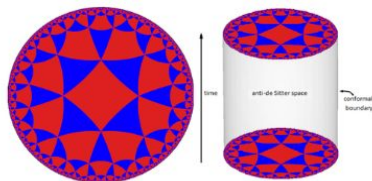
See the full list at
physicslatam.com/about

Distribution of People by Country Enrolled at Physics LATAM



GAUGE / GRAVITY DUALITY 2024

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS



SUCCESSFULLY PASSED STUDENTS



Felipe Agurto 🇨🇱
(Universidad de Concepción, CL)



Axel León Arteaga 🇪🇨
(Universidad Nacional de Trujillo, PE)



Juan Diego Garro 🇨🇴
(Universidad de Antioquia, CO)



Juan Guzman 🇨🇴
(Universidad Nacional de Colombia, CO)



Allan Hurtado 🇬🇹
(University of San Carlos of Guatemala, GT)



Félix Ibarra Castor 🇲🇽
(Universidad Autónoma de Zacatecas, MX)



Omar Lopez Perez 🇲🇽
(URAM, MX)



Juan Mejía Picon 🇲🇽
(CINVESTAV, MX)



Jhon Moreno Triana 🇨🇴
(Universidad Nacional de Colombia, CO)



Diego Partida 🇲🇽
(Universidad Autónoma de Nuevo León, MX)



Daniel Perdomo 🇨🇺
(Universidad de La Habana, CU)



Ivan Pérez Castro 🇲🇽
(Cinvestav-IPN, MX)



Cielo Estela Ramirez 🇨🇱
(Universidad de Concepción, CL)



Steven Sanchez Perla 🇨🇨
(The University of Valle, CO)



Juan Santos Suárez 🇪🇸
(Universidad de Santiago de Compostela, ES)

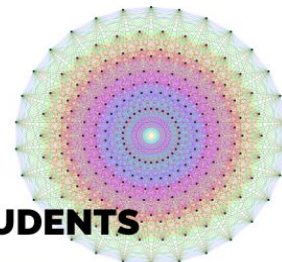


Gustavo Tapia 🇪🇨
(Universidad Nacional de Trujillo, PE)

Physics LatAm
ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

INFINITE-DIMENSIONAL LIE ALGEBRAS 2024

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS



SUCCESSFULLY PASSED STUDENTS



Uriel Aguilar 🇲🇽
(UAM-Acapatzaco, MX)



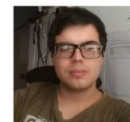
Juan Chica 🇪🇨
(Escuela Politécnica Nacional, EC)



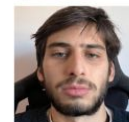
Elkin Eraso 🇨🇴
(Universidad Nacional de Colombia, CO)



Andrés Guarín 🇨🇴
(Universidad Industrial de Santander, CO)



Nicolás Hernández 🇨🇴
(Universidad Industrial de Santander, CO)



Gabriel Jailli 🇨🇺
(Universidad Nacional del Sur, AR)



Cristian López 🇨🇴
(Universidad Nacional de Colombia, CO)



Isaac Mendez 🇲🇽
(Universidad Autónoma del Estado de México, MX)



Angie Milena 🇨🇴
(Universidad Industrial de Santander, CO)



Jaqueline Muñoz 🇲🇽
(Universidad Autónoma del estado de Hidalgo, MX)



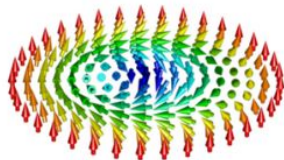
Jheny Rodríguez 🇨🇴
(Universidad Nacional de Colombia, CO)



Rubén Tóquerrez 🇨🇺
(Escuela Politécnica Nacional, EC)

CONDENSED MATTER FIELD THEORY 2024

ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATHEMATICS



SUCCESSFULLY PASSED STUDENTS



Luis Ávalos 
(Cinvestav, MX)



Esteban Marulanda 
(Universidad de Antioquia,
CO)



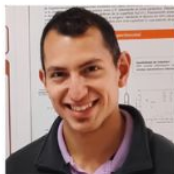
Juan Morales 
(ICTP, IT)



Siddhartha Morales 
(IFT-UNESP, BR)



Jorge Pérez 
(Cinvestav, MX)



Julián Villarreal 
(Universidad Nacional del Sur,
AR)



Luis Vargas 
(CINVESTAV-IPN, MX)



Cristian Zambrano 
(Universidad de Pamplona,
CO)

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ICTP The Abdus Salam
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Mathematics and High Energy Physics Seminar

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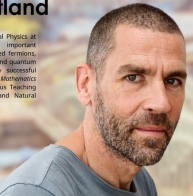
A short Introduction to Lattice Gauge Theory

In condensed matter field theory, we often take continuum limits of theories originally defined on lattices to obtain simplified descriptions. In this talk, we will go the reverse way: from continuum gauge theories to gauge theories defined on a lattice. Why would one want to do that? The short answer is that new physics emerges. Lattice gauge theories tend to be much richer than their continuum counterparts because they allow for larger fluctuations of gauge fields. We will discuss this principle for U(1) gauge theory (think of electromagnetism), and then move on to a gauge theory with a discretely simple gauge group: Z₂, combining just two elements. We will discuss how this lattice theory contains exceptionally rich physics, including topological order, and from there, if time permits, turn to the foundations of stabilizer code quantum computation.

Alexander Altland
Universität zu Köln

Alexander Altland is a Professor of Theoretical Physics at the Universität zu Köln. He has made important contributions to the classification of disordered fermions, topological quantum matter, the SYK model, and quantum chaos. He is the co-author of the highly successful textbooks *Condensed Matter Field Theory and Mathematics for Physicists*. He received the Abdurrahman Magnus Teaching Award from the Faculty of Mathematics and Natural Sciences at the Universität zu Köln.

**10-12 GMT-4
Friday 19 July 2024**
ONLINE SEMINAR
Zoom ID: 835 9644 8829
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Mathematics and High Energy Physics Seminar

Anyons, Topologically Ordered Matter: Why You Should be Interested

In two dimensional topologically ordered matter, processes depend on gross topology rather than detailed geometry. Thinking in 2+1 dimensions, particle world lines can be interpreted as knots or links, and the analogies for certain processes becomes a topological invariant of that link. While sounding rather esoteric, we believe that such phases of matter not only exist, but have actually been observed in Quantum Hall experiments, and could provide a route to building a quantum computer.

Steven H. Simon

Steven H. Simon is a professor of theoretical physics at Oxford University and a fellow of Somerville College. Formerly a department director at Bell Laboratories, Professor Simon is interested in condensed matter physics, biological quantum effects, quantum information, wireless communications, semiconductor physics, fractional quantum Hall effect, and topological quantum computation. His current research focus is on topological phases of matter. He is a fellow of the American Physical Society and has recently held a Royal Society Wolfson Merit Award. He is the author of a popular introductory book on solid state physics.

**15-17 CET
21 May 2024**
ONLINE SEMINAR
Zoom ID: 835 9644 8829
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ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATHEMATICS

Quantum Fractal: from meta- to real materials

We know how electrons behave in 1,2,3 dimensions, but what about d=1.5? In this talk, I will first describe fractal structures that may have a non-integer dimension. Then I will present experiments on electronic and photonic quantum simulators and explain how electrons and photons behave at fractal dimension. Finally, I will discuss the fractal-lattice Hubbard model and the topological properties of electrons in self-formed Sierpinski fractals on ins.

Cristiane de Morais Smith
ITP Utrecht University

Cristiane de Morais Smith is a Brazilian theoretical physicist and professor at the Institute for Theoretical Physics at the University of Utrecht, where she leads a research group studying condensed matter physics, cold atoms and strongly-correlated systems. In 2019, the European Physical Society awarded Morais Smith its Emmy Noether Distinguished.

Morais Smith has authored or co-authored over 100 scientific papers, including articles in Nature Physics, Nature Materials, Nature Communications, Physical Review Letters, Physical Review B, and many others. While several of her papers have been recognized as "Editors' Choice" and "scientific highlights".

**10-12 GMT-4
28 June 2024**

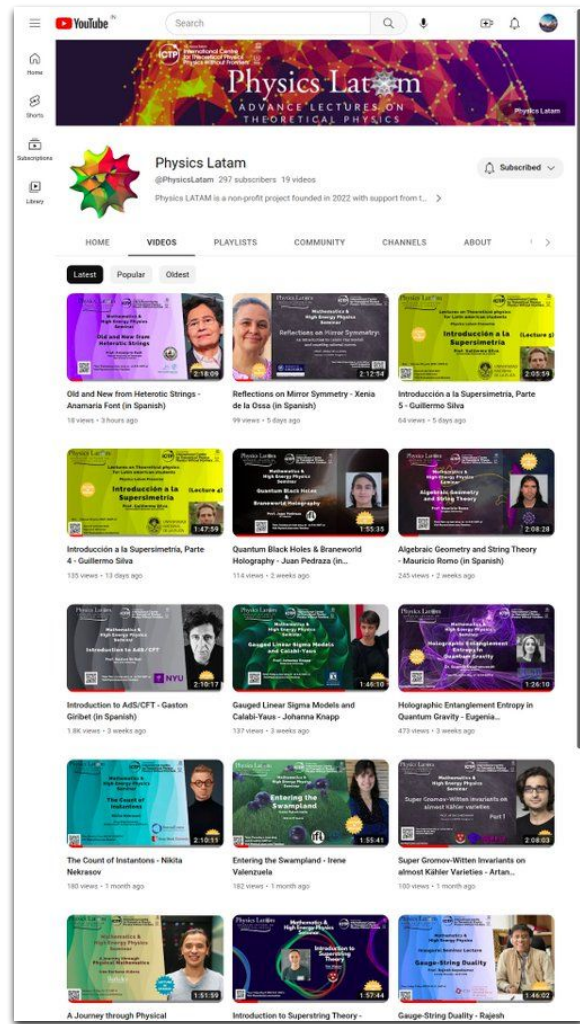
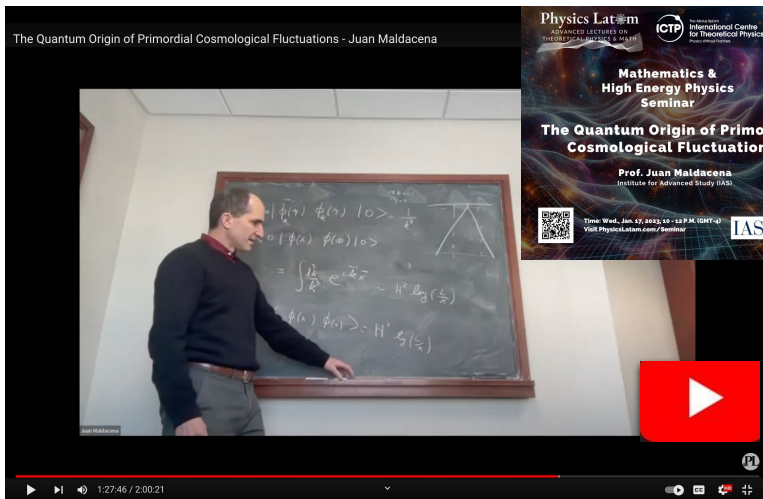
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This image is a grid of 50 individual lecture posters for the Mathematics & High Energy Physics Seminar. Each poster includes the seminar title, the speaker's name and affiliation, the date and time of the lecture, and a QR code for registration. The posters are arranged in a 5x10 grid.

Poster #	Title	Speaker	Affiliation
1	Inaugural Lecture: Mathematics & High Energy Physics	Prof. Rajesh Gopakumar	ICTP
2	Introduction to the Swamperia	Prof. Guillermo Silva	ICTP
3	A Journey through Physical Mathematics	Nina Barua Aldana	Berkeley
4	Entering the Swamp	Prof. Nikita Nekrasov	ICTP
5	The Count of Instantons	Prof. Irene Calaque	Shanghai Jiao Tong University
6	Gauged linear sigma models and Calabi-Yaus	Prof. Johanna Knapp	ICTP
7	Holographic Entanglement Entropy in Quantum Gravity	Dr. Eugenio D'Ada	ICTP
8	Introduction to AdS/CFT	Prof. Gaston Giribet	NYU
9	Algebraic Geometry and String Theory	Prof. Mauricio Romo	Yonsei University
10	Quantum Black Holes	Prof. Juan Pedraza	IFT
11	Reflections on mirror symmetry	Prof. Ken-ichi Ueda	OXFORD
12	Old and New from Heterotic Strings	Prof. Anamaria Font	ICTP
13	Matrix Models and String Theory	Olya Papanicolaou	ICTP
14	Toric Geometry for String Theory	Prof. Alessandro Tomasiello	ICTP
15	Topological Recursion	Sandra Giacchetto	ICTP
16	Tests of GR with Cosmology	Prof. Lavinia Heisenberg	ETH Zurich
17	Essential Algebraic Tools for Algebraic Geometry	Dmitri Prokhorov	ICTP
18	Geometric Langlands correspondence	Prof. Dennis Gaitsgory	Harvard University
19	Bordisms and Quantum Gravity	Maitlida Delgado	IFT
20	Cosmology and String Theory	Prof. Fernando Quevedo	ICTP
21	Classification of Conformal Field Theory in Two Dimensions	Prof. Sunil Mukhi	ICTP
22	GENERAL RELATIVITY AND COSMOLOGY	Prof. Alejandra Castro	ICTP
23	Black Holes	Prof. Richard Thomas	ICTP
24	Enumerative Geometry: Gromov-Witten Theory and String Theory	Daniel Galvez	ICTP
25	Algebraic Geometry of Kähler Varieties	Prof. Daniel Huybrechts	Bonn University
26	Super Gromov-Witten invariants on almost Kähler varieties	Prof. Arantxa Seshman	ICTP
27	Hilbert schemes of points on surfaces	Lothar Göttsche	ICTP
28	Algebraic geometry and Vafa-Witten theory	Prof. Martin Kool	University of Cambridge
29	Variations of Hodge structures and Geometric Applications	Prof. Claire Voisin	ICTP
30	Gopakumar-Vafa type invariants of Calabi-Yau 4-folds	Yalong Gao	ICTP
31	Geometry of Landau-Ginzburg models and Homological Mirror symmetry	Dr. Catherine Gaiotto	ICTP
32	The notion of space in Grothendieck's geometry	Alexander Cruz	ICTP
33	Scattering Amplitudes: Polylogarithms and Beyond	Matt von Hippel	ICTP
34	Moduli spaces in Quantum Field Theory and String Theory	Pranav Pandit	ICTP
35	Quantum Geometric and algebraic aspects of supersymmetric Gauge theory	Tighe Kimura	ICTP
36	Spectral networks and skein modules	Sunghyuk Park	ICTP
37	Axiomatic Quantum Field Theories	Prof. Ivan Contreras	ICTP
38	Emergence of Spacetime	Prof. Thomas Hartman	ICTP
39	Baryogenesis: The Generation of the Matter-Antimatter Asymmetry in the Universe	Valeria Dornic	ICTP
40	Generalized Symmetries in QFT	Prof. Thomas Dumitrescu	ICTP

Some Recent Lectures & Minicourses !!

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Quantum Complexity and Holography

This talk will describe some recent work on holographic quantum complexity. We will discuss the relationship between quantum complexity and entanglement entropy, and how these concepts are related to the geometry of spacetime in the context of the AdS/CFT correspondence.

Robert Myers
Director of Perimeter Institute

14-18 CET
28 May 2024
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Mathematics and High Energy Physics Seminar


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Aspects of the Particle-operator (extrapolate) Dictionary in AdS/CFT

The AdS/CFT correspondence predicts that there is a relation between operators on the boundary and particles in the bulk of AdS. I will explain how some aspects of this dictionary arise in detail.

David Berenstein
University of California, Santa Barbara

10-12 GMT-4
04 June 2024
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Quiver Varieties

Mathematical quiver varieties are central objects that recently attracted much attention in physics. These varieties have been used by physicists to study a generalization of instanton counting, and have been used to study the relationship between supersymmetric gauge theory and algebraic geometry.

Hiraku Nakajima
Professor at Kyoto IPMU, the University of Tokyo

10-21 GMT-4
05 July 2024
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Mathematics and High Energy Physics Seminar


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The Physical Mathematics of Gauged Linear Sigma Models

Gauged linear sigma models (GLSMs), first introduced by Witten in 1983, are a generalization of gauge theories in two dimensions. They provide a powerful tool to study properties of extra dimensions in string theory, and the mathematical structures behind them. The aim of these lectures is to show how in physics analysis of GLSMs (vacuum configurations, supersymmetric effective theories, D-branes, path integrals) are related to advanced mathematical objects (quasimaps, enumerative invariants, etc.). The main focus will be on GLSMs that are related to Calabi-Yau compactifications of string theory.

Johanna Knapp
The University of Melbourne

20-22 GMT-4
27, 29, 30 October 2024
ONLINE SEMINAR
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Mathematics and High Energy Physics Seminar


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Introduction to the Swampland

The Swampland Program aims to uncover the universal implications of quantum gravity at low energy. Many of the proposed proposals are connected to general features of black holes and their horizons. We will explore these connections in some detail, in particular for the null global symmetries and Weak Gravity Conjecture.

Miguel Montero
ICTP, Trieste

10-12 GMT-4
27, 29, 30 November 2024
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Mini Course: Gravitational Waves

This short course aims to provide a quick survey of gravitational-wave (GW) astronomy. The first lecture will introduce the linearized theory of GR. The second lecture will provide a broad overview of GW detection using laser interferometers and GW data analysis. The final lecture will survey GW astrophysics and the current results from LIGO-Virgo observations.

Parameswaran Ajith
IGIS-TRIP

9:30-11 am GMT-4
3, 4 October 2024
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Mathematics and High Energy Physics Seminar


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Quantum Black Holes and Number Theory

Quantum black holes are a central topic in the study of quantum gravity. In this lecture, we will discuss the relationship between quantum black holes and number theory, and how these concepts are related to the geometry of spacetime in the context of the AdS/CFT correspondence.

Alish Dabholkar
Director of ICTP

15-17 GMT-4
11 October 2024
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Mathematics and High Energy Physics Seminar


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Solving a clock puzzle with Mirror Symmetry

I will present a recent result on mirror symmetry and clock puzzles. The puzzle is a generalization of the mirror symmetry puzzle, and has been solved using mirror symmetry techniques.

Eric Zaslow
Northwestern University

10-12 GMT-4
22, 24 October 2024
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Entanglement Entropy and Spacetime: New Insights

Recently, a new interpretation of gravitational entanglement entropy of quantum black holes has been proposed. This interpretation is a generalization of the Ryu-Takayanagi formula, and has been used to study the relationship between entanglement entropy and spacetime geometry.

Tadashi Takayanagi
YITP

12-14 CET
4, 6, 11 November 2024
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Mathematics and High Energy Physics Seminar


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A-model: Topological String Theory

We will start with an introduction to Gromov-Witten theory, which can be viewed as a mathematical theory of moduli of algebraic curves. We will then discuss mathematical theories and generalizations of topological strings on toric Calabi-Yau threefolds. The theory is related to the enumerative geometry of curves and surfaces, and has been used to study the relationship between enumerative geometry and string theory.

Chiuh-Chu Melissa Liu
Chubu University

10-12 am GMT-4
19, 26, 28, 29 Nov. 2024
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Past and future mini courses !!

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Mini course
Gross-Siebert Program

Prof. Mark Gross
 University of Cambridge

5 lectures

• Mon. 25 Sept.	Time 7:30 - 9:30 pm (IST)
• Wed. 27 Sept.	
• Mon. 02 Oct.	
• Wed. 04 Oct.	
• Mon. 09 Oct.	

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Further Information
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Mini course
MATRIX MODELS, LARGE N & STRINGS

Prof. Guillermo Silva
 Universidad Nacional de La Plata

6 LECTURES

• 18 April	Time 7:30 - 9:30 pm (IST)
• 22 April	
• 25 April	
• 29 April	
• 06 May	
• 10 May	

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Mini course
Supersymmetry

Prof. Silvia Penati
 Milan Bicocca University

Lectures in February 2024

• 1 11-12	
• 6 11-12	
• 8 11-12	
• 9 10-12	GMT-4
• 15 11-12	
• 16 10-12	
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Mini course
Algebraic Topology in Physics

Prof. Pavel Putrov
 International Centre for Theoretical Physics

5 LECTURES

• 29 May	Time 16-18 CET
• 30 May	
• 06 June	
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Mini course
CURRENT STATUS ON BLACK HOLES AND INFORMATION PARADOX

Prof. Suvrat Raju
 ICTS-TIFR

LECTURES
 MARCH 2024

• 18 Monday	Time 16-18 CET
• 22 Wednesday	
• 27 Wednesday	
• 29 Friday	

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Cosmological Correlators

Enrico Pajer
 DAMTP, University of Cambridge

10-12 GMT-4
14, 15 November 2024

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Gopakumar-Vafa Invariants

Yukinobu Toda
 Kyoto IMPU, University of Tokyo

07:00 am GMT+9
4 & 9, 11-15 December 2024

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Quantum Riemann-Roch

Alexander Givental

10-12 am GMT-4
Feb. 2025

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String Field Theory

Ashoke Sen
 ICTS

11-12 GMT-4
2025

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Physics Latam Mini course

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Advanced Topics in Commutative Algebra

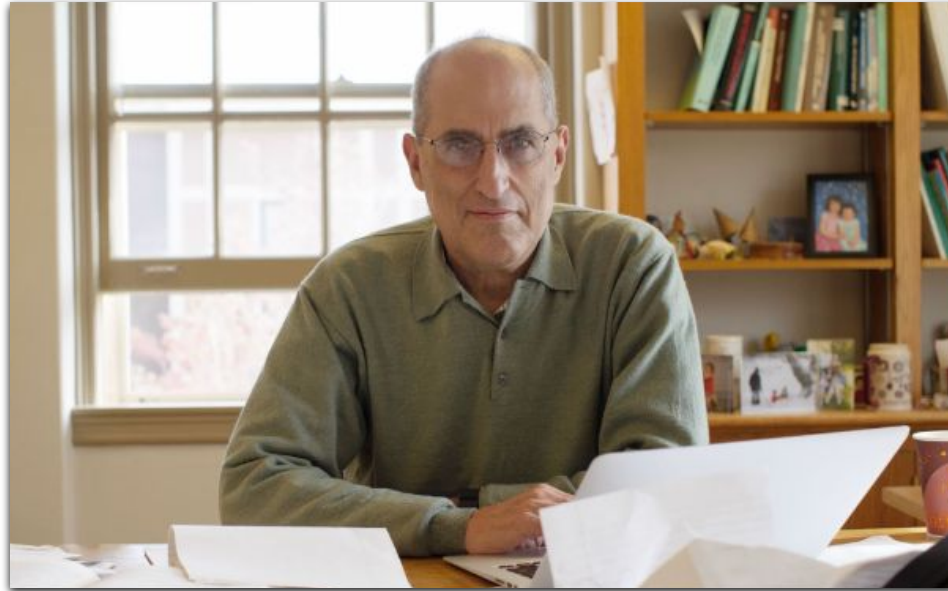
Miles Reid
 University of Warwick

16-18 CET
February 2025

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MATH MASTER IN PARIS

Julian Alberto Alzate Cardenas

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NOV. 23, 2024

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Weyner Ccuero
PhD student in Theory and Simulation of Condensed Matter

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<p>Diana Lopez, U. Bonn "BCGS: Bonn/Cologne"</p>	<p>Juan Morales, Max Planck "Physics at Max Planck"</p>	<p>Andres Villacob, ICTP "Diploma at ICTP"</p>

05 November 2024
10-12:30 (GMT-4)

Online

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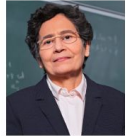
Nana Cabo Bizet 
(University of Guanajuato, MX)
Quantum Field Theory



Alejandra Castro 
(University of Cambridge, UK)
Gravitation



Carmen Nuñez 
(University of Buenos Aires, AR)
Supergravity



Anamaría Font 
(Max-Planck-Institut für Gravitationsphysik, DE)
String Theory



Marta Losada 
(NYU Abu Dhabi, AE)
Cosmology & Particles



Ana María Rey 
(University of Colorado Boulder, USA)
Topological Quantum Matter



Melissa Maldonado 
(Pontifical Catholic University of Chile, CL)
AMO Physics



Myriam Mondragón Ceballos 
(Universidad Nacional Autónoma de México, M)
Particle Physics

PUBLIC TALK



Ivette Fuentes 
(University of Southampton, UK)

"Technologies in the Future of Theoretical Physics"



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Nana Cabo Bizet (University of Guanajuato)
Quantum Field Theory

Alejandra Castro (University of Cambridge)
Gravitation

Giovanna Costa (Pontifical Catholic University of Chile)
Phenomenology of New Physics

Anamaría Font (The Central University of Venezuela)
String Theory

Marta Losada (NYU Abu Dhabi)
Cosmology & Particles

Melissa Maldonado (Pontifical Catholic University of Chile)
AMO Physics

Myriam Mondragón Ceballos (UNAM)
Particle Physics

Carmen Nuñez (University of Buenos Aires)
Supergravity

Xenia de la Ossa (University of Oxford)*
Mathematical Physics

Ana María Rey (University of Colorado Boulder)
Topological Quantum Matter

Public Talk

Ivette Fuentes (University of Southampton)
Technologies in the Future of Theoretical Physics

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- Condensed Matter
- Cosmology
- Quantum Computing


***To be confirmed**



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**International Centre
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Physics Without Frontiers**



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and Cultural Organization

Physics Latam

ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATH

www.Physicslatam.com

Students applied to give a contributed talk!

Physicslatam.com/women



GENERAL RELATIVITY & COSMOLOGY

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

June 03 - August 31, 2024

(Online Mode)

GUEST SPEAKERS

- Parameswaran Ajith (ICTS-TIFR)
- Jan de Boer (University of Amsterdam)
- Elena Caceres (UT Austin)
- Paolo Creminelli (ICTP)
- Atish Dabholkar (ICTP)
- Wei Song (YMSC, Tsinghua University)

LECTURERS

- Esteban Chalbaud (LIP, University of Coimbra)
- Daniel Galviz (YMSC, Tsinghua University)

ASSISTANTS

- Lina Castiblanco (Newcastle University)
- Blanca Hergueta (Universität zu Köln)

ORGANIZER

- Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSE

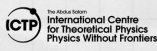
Gravity Waves
Parameswaran Ajith
(ICTS-TIFR)

OTHER COURSES B-2024

Quantum Field Theory I
Theoretical Particle Physics
Commutative Algebra

APPLY

www.PhysicsLatam.com/gr
Deadline: 24 May 2024



Physics Latam
ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

More Information

PhysicsLatam.com/gr [Physicslatam\[at\]gmail.com](mailto:Physicslatam[at]gmail.com) indico.ictp.it/event/10709

Physics Latam

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

Summer course 2024

80 Students enrolled

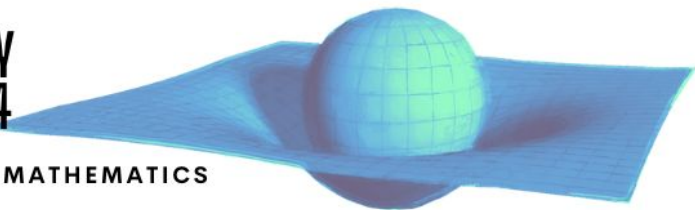
The screenshot shows a Zoom meeting interface. The main content is a presentation slide titled "General Relativity & COSMOLOGY 2024". The slide features a "Syllabus" section with the following topics:

- 1. Introduction to Differential Geometry
 - Topological Spaces
 - Manifolds and Coordinates
 - Maps of Manifolds
 - Tangent bundle
 - Orientation
 - Cotangent bundle
 - Push-forward and Pull-back
 - Differential Forms
 - Vector, co-vector and Tensors
 - The Metric tensor
 - Integration over manifold
 - Lie derivatives
- 2. Special Relativity
 - Prostiles
 - Lorentz Transformations
 - Spacetime and Four-Vectors
 - Relativistic Kinematics
 - Relativistic Dynamics
- 3. Geodesics
 - Action of a Point Particle
 - Friedmann Equation
 - Newtonian Limit
 - Geodesics in Schwarzschild
- 4. Spacetime Curvature
 - Covariant Derivative
 - Parallel Transport and Geodesics
 - Symmetries and Killing Vectors
 - The Riemann Tensor
 - Geodesic Deviation
- 5. The Einstein Equation
 - Einstein's Field Equation
 - Einstein-Hilbert Action
 - Including Matter
 - The Cosmological Constant
 - Some Vacuum Solutions
- 6. Black Holes
 - Schwarzschild Black Holes
 - Charged Black Holes
 - Rotating Black Holes
 - Theorems
- 7. Cosmology
 - LRW metric and equations
 - Friedmann Equation
 - Boltzmann equations
 - Our Universe
 - The Λ CDM model

Handwritten notes in red and blue ink are present on the slide, including "D6" and "E6". At the bottom of the slide, it says "Applications are now open". The Zoom interface shows a participant named "Daniel Galviz" in a video window on the right.

GENERAL RELATIVITY & COSMOLOGY 2024

ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATHEMATICS



SUCCESSFULLY PASSED STUDENTS



Uriel Aguilar 🇪🇨
(Universidad Autónoma
Metropolitana, MX)



Angel Almonacid 🇪🇨
(Universidad Nacional de
Columbia, CO)



Juan Aranda 🇪🇨
(Universidad Nacional de
Columbia, CO)



Facundo Arreyes 🇪🇨
(Universidad Nacional del Sur,
AR)



Johan Ávila 🇪🇨
(Universidad Distrital
Francisco José de Caldas, CO)



Ricardo Ballón 🇪🇨
(Universidad Nacional de San
Agustín de Arequipa, PE)



Edy Flores 🇪🇨
(Instituto de Matemática,
MX)



Manuel García 🇪🇨
(Universidad Nacional de
Columbia, CO)



Andres Gomez 🇪🇨
(Universidad de Antioquia,
CO)



Julián Gómez 🇪🇨
(Universidad Surcolombiana,
CO)



Arian Gorza 🇪🇨
(Universidad Nacional del
Sur, AR)



Nicolas Hernandez 🇪🇨
(Universidad Industrial de
Santander, CO)



Luis Baracaldo 🇪🇨
(Universidad Nacional de
Columbia, CO)



Juan Beltrán 🇪🇨
(Universidad Autónoma
de Columbia, CO)



Francisco Campos 🇪🇨
(Universidad Autónoma
Metropolitana, MX)



Diego Cancelado 🇪🇨
(Universidad Pedagógica y
Tecnológica de Colombia, CO)



Enrique Casanova 🇪🇨
(Pontificia Universidad
de Santo Domingo, R. DO)



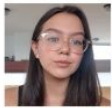
Dyer Cardenas 🇪🇨
(Pontificia Universidad
Católica del Perú, PE)



Alessandro Huaman 🇪🇨
(Pontificia Universidad
Católica del Perú, PE)



Gabriel Jallí 🇪🇨
(Universidad Nacional del Sur,
AR)



Sofía Londoño 🇪🇨
(Universidad Nacional de
Columbia, CO)



Juan Maldonado 🇪🇨
(Universidad Surcolombiana,
MX)



Keinan Marín 🇪🇨
(Universidad Nacional de
Trujillo, PE)



Esteban Marulanda 🇪🇨
(Universidad Nacional de
Córdoba, CO)



Saúl Castillo 🇪🇨
(Universidad Autónoma de
Santo Domingo, R. DO)



Geraldine Castro 🇪🇨
(Universidad Distrital
Francisco José de Caldas, CO)



Ingrid Cuevas Ruiz 🇪🇨
(Universidad Distrital
Francisco José de Caldas, CO)



Julian Estupiña 🇪🇨
(Universidad Nacional de
Columbia, CO)



Fabian Fiallo 🇪🇨
(Universidad de La Habana,
CU)



Andrés José Flores 🇪🇨
(Universidad de Los Andes,
VE)



Erandi Navarro 🇪🇨
(Universidad Veracruzana,
MX)



Gabriel Ortega 🇪🇨
(Universidad de Caceres,
AR)



James Pellaflor 🇪🇨
(Universidad San Francisco de
Quito, EC)



Juan David Pizaros 🇪🇨
(Universidad Surcolombiana,
MX)



Jhenny Rodríguez 🇪🇨
(Universidad Nacional de
Pinar del Río, CU)



Daniel Rodríguez 🇪🇨
(Universidad Central de
Venezuela, VE)



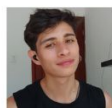
José Miguel Rojas 🇪🇨
(Universidad Central de
Santo Domingo, R. DO)



Patricia Rosales 🇪🇨
(Universidad Central de
Venezuela, VE)



Angie Sanchez 🇪🇨
(Universidad Industrial de
Santander, CO)



Juan Salgado 🇪🇨
(Universidad Nacional de
Columbia, CO)



Tomas Sosa Giraldo 🇪🇨
(Universidad de Antioquia,
CO)



Javier Soto 🇪🇨
(Universidad Autónoma de
Nuevo León, MX)



Daniel Tinoco 🇪🇨
(Universidad Nacional de
Columbia, CO)



Sergio Vargas 🇪🇨
(Universidad Nacional de
Columbia, CO)



Jordan Zambrano 🇪🇨
(Fachy Tech University, EC)

Current courses B2024



PL PHYSICS LATAM

QUANTUM FIELD THEORY I

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

09 Sept. 2024 - 31 Jan. 2025 (Online Mode)

GUEST SPEAKERS

- Blanca Dittrich (Perimeter Institute)
- Zohar Komargodski (SCOP & Stony Brook University)
- Enrico Pajer (ICTP, University of Cambridge)
- Matthew Reece (SISSA)
- Kasra Rejzner (University of York)
- Ashoke Sen (ICTP)
- David Wallace (University of Pittsburgh)
- Edward Witten (Institute of Advanced Study)

LECTURER

Santiago Agal Salcedo (DAMTP, University of Cambridge)

ASSISTANTS

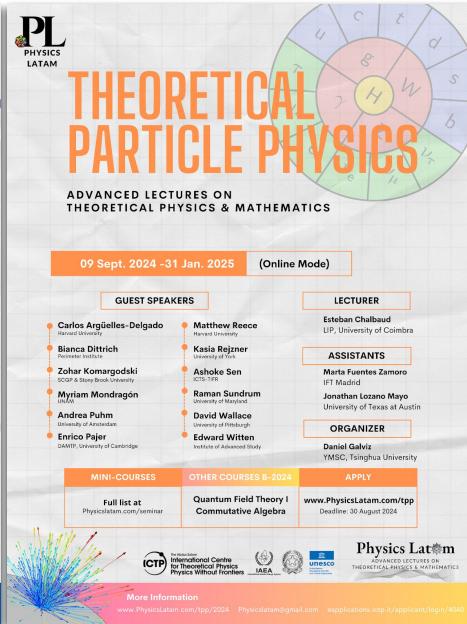
- Isai Davila (SISSA)
- Gonzalo Villa (DAMTP, University of Cambridge)

ORGANIZER

Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSES	OTHER COURSES B-2024	APPLY
Full list at Physiclatam.com/seminar	Theoretical Particle Physics Commutative Algebra	www.PhysicLatam.com/qft-I Deadline: 30 August 2024

More Information: <https://physiclatam.com/qft-I/2024> | PhysicLatam@gmail.com | applications.ictp.it/applicant/login/6040



PL PHYSICS LATAM

THEORETICAL PARTICLE PHYSICS

ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

09 Sept. 2024 - 31 Jan. 2025 (Online Mode)

GUEST SPEAKERS

- Carlos Argüelles-Delgado (Perimeter Institute)
- Blanca Dittrich (Perimeter Institute)
- Zohar Komargodski (SCOP & Stony Brook University)
- Myriam Mondragón (ICTP)
- Andrea Puhm (University of Amsterdam)
- Enrico Pajer (DAMTP, University of Cambridge)

LECTURER

Esteban Chalbaud (UP, University of Coimbra)

ASSISTANTS

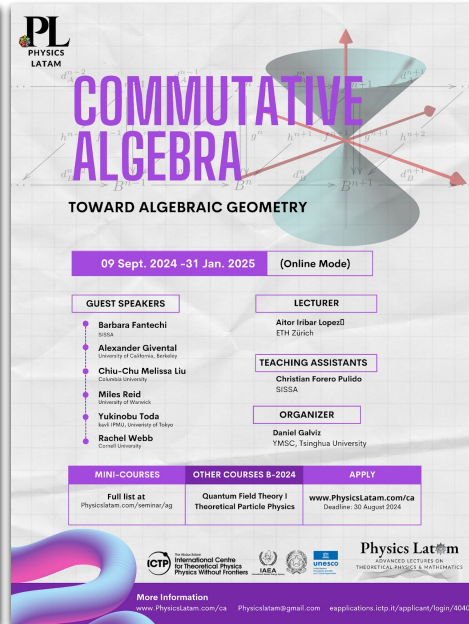
- Martha Fuentes Zamoro (IFT Madrid)
- Jonathan Lozano Mayo (University of Texas at Austin)
- Raman Sundrum (University of Maryland)
- David Wallace (University of Pittsburgh)
- Edward Witten (Institute of Advanced Study)

ORGANIZER

Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSES	OTHER COURSES B-2024	APPLY
Full list at Physiclatam.com/seminar	Quantum Field Theory I Commutative Algebra	www.PhysicLatam.com/tp Deadline: 30 August 2024

More Information: www.PhysicLatam.com/tp/2024 | PhysicLatam@gmail.com | applications.ictp.it/applicant/login/6040



PL PHYSICS LATAM

COMMUTATIVE ALGEBRA

TOWARD ALGEBRAIC GEOMETRY

09 Sept. 2024 - 31 Jan. 2025 (Online Mode)

GUEST SPEAKERS

- Barbara Fantechi (SISSA)
- Alexander Givental (University of California, Berkeley)
- Chiu-Chu Melissa Liu (Colorado University)
- Miles Reid (University of Warwick)
- Yukimobu Toda (IIS, UTMSI, University of Tsukuba)
- Rachel Webb (Cornell University)

LECTURER

Aitor Iribar Lopez (ETH Zurich)

TEACHING ASSISTANTS

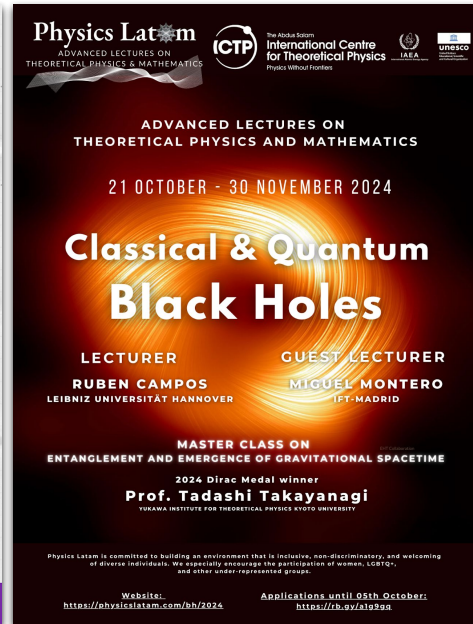
Christian Favero Pulido (SISSA)

ORGANIZER

Daniel Galviz (YMSC, Tsinghua University)

MINI-COURSES	OTHER COURSES B-2024	APPLY
Full list at Physiclatam.com/seminar/qg	Quantum Field Theory I Theoretical Particle Physics	www.PhysicLatam.com/ca Deadline: 30 August 2024

More Information: www.PhysicLatam.com/ca | PhysicLatam@gmail.com | applications.ictp.it/applicant/login/4040



Physics Latam ADVANCED LECTURES ON THEORETICAL PHYSICS & MATHEMATICS

ICTP International Centre for Theoretical Physics

21 OCTOBER - 30 NOVEMBER 2024

Classical & Quantum Black Holes

LECTURER RUBEN CAMPOS (LEIBNIZ UNIVERSITÄT HANNOVER)

GUEST LECTURER MIGUEL MONTERO (IFT-MADRID)

MASTER CLASS ON ENTANGLEMENT AND EMERGENCE OF GRAVITATIONAL SPACETIME

2024 Dirac Medal winner

Prof. Tadashi Takayanagi
YUKAWA INSTITUTE FOR THEORETICAL PHYSICS KYOTO UNIVERSITY

Physics Latam is committed to building an environment that is inclusive, non-discriminatory, and welcoming of diverse individuals. We especially encourage the participation of women, LGBT+, and other under-represented groups.

Website: <https://physiclatam.com/bh/2024>

Applications until 08th October: <https://ib.gy/41929a>

Students cannot take more than one course at a time.

Students at Physics Latam going to ICTP

2023

- Quantum Field Theory course
 - Salim Davila @ICTP-Diploma HECAP
 - Jonathan Pineda @ICTP Diploma CMP
- Quantum Gravity course
 - Juan Sebastian Morales @ICTP-Diploma CMP
- Algebraic Geometry course
 - Julian Alzate @ICTP-Diploma MTH
- General Relativity course
 - Carlos Desa @ICTP-Diploma CMP



In 2023, 6 Latin American students were accepted into the ICTP Diploma (HECAP, CMP, MTH).

5 of these students were enrolled @Physics Latam.

2024

- Quantum Field Theory course
 - Gomez Cruz Nicolas @ICTP-Diploma HECAP
- Theoretical Particle Physics course
 - Jimmy Leonardo Ventocilla @ICTP-Diploma HECAP
- General Relativity course
 - Aline Pereyra Flores @ICTP-Diploma HECAP
- Women in Theoretical Physics speaker, contributed talk
 - Mikaela Carrasco Hidalgo @ICTP-Diploma HECAP

In 2024, 4 Latin American students were accepted into the ICTP Diploma for HECAP

All 4 were enrolled @Physics Latam.

To finish we want to thank:



Bobby Acharya

ICTP



Gerardo Aldazabal

Centro Atómico Bariloche-Instituto Balseiro



Agnese Bissi

ICTP



Juan Pablo Beltran

Universidad Nacional de Colombia



Nana Cabo

University of Guanajuato



Reina Camacho

ATLAS-CERN



Elena Carceres

UT Austin



Anamaria Font

Universidad Central de Venezuela



Daniel Galviz

YMSC, Tsinghua University



Alberto Guijosa

UNAM



Carmen Nuñez

University of Buenos Aires



Leopoldo Pando-Zayas

University of Michigan, Ann Arbor.



Fernando Quevedo

University of Cambridge



Diego Restrepo

Universidad de Antioquia



Carlos Sandoval

Universidad Nacional de Colombia



Kate Shaw

University of Sussex | ICTP



Guillermo Silva

La Plata University



Natasha Stojic

ICTP



Oscar Zapata

Universidad de Antioquia



Jorge Zanelli

Centro de Estudios Científicos - Valdivia

Courses Selection Committee

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Impossible without
the incredible help
of our team of
volunteers 2024!

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Daniel Galviz 
YMSC (Tsinghua University, CN)
ICTS (Itala Institute of Fundamental
Research, IN)
Contributions
Founder and Lecturer



Mateo Moreno 
(University of Cologne, DE)
Contributions
Lecturer for Condensed Matter Field
Theory 2024



Aitor Iribar Lopez 
(ETH Zurich, CH)
Contributions
Lecturer for Commutative Algebra course
2024



Christian Forero 
(SISSA)
Contributions
TA for Commutative Algebra course
2024



Fabiola Cañete
(Stony Brook University, USA)
Contributions
TA for Quantum Information Theory 2024
Organizer of Conference for Women in
Physics 2024




Daniel Bermudez 
(IHCM- University of Bonn)
Contributions
TA for Infinite-dimensional Lie
Algebra 2024



Weyner Ccuiro 
(SISSA, IT)
Contributions
TA for Condensed Matter Field
Theory 2024



Esteban Chalbaud 
(LIP-Coimbra
(University of Coimbra, PT)
Contributions
Lecturer for Theoretical Particle Physics 2023/2024
Co-organizer of Physics @Night Seminars Lecturer
for General Relativity & Cosmology 2023/2024



José Polo-Gómez 
(AMATH Dept. & IQC, UJ. of Waterloo, CA)
(Perimeter Institute, CA)
Contributions
Lecturer for Quantum Information Theory
2024



Santiago Agüi 
(DAMTP, University of Cambridge)
Contributions
Lecturer for Quantum Field Theory course
2024



Isai Davila 
(SISSA)
Contributions
TA for Quantum Field Theory course
2024



Jonathan Lozano 
(University of Texas at Austin)
Contributions
TA for Theoretical Particle Physics
course 2024



Blanca Hergueta 
(Universität zu Köln)
Contributions
TA for General Relativity &
Cosmology 2024



Ruben Campos 
(ITP-Leibniz Universität Hannover)
Contributions
Lecturer for Black Holes mini-course 2023/2024
Lecturer for Quantum Gravity 2023
TA for Quantum Field Theory 2022



Sebastian Schlegel 
(Max Planck for Mathematics, DE)
Contributions
Lecturer for Infinitesimal-dimensional
Lie algebras 2024



María Preciado 
(IQC - U. Waterloo, CA)
Contributions
TA for Quantum Information Theory
2024



Gonzalo Villa 
(DAMTP, University of Cambridge)
Contributions
TA for Quantum Field Theory course
2024



Sergio Aguilar 
(KU Leuven)
Contributions
TA for Gauge/Gravity Duality 2024



Lina Castiblanco 
(Newcastle University)
Contributions
TA for General Relativity &
Cosmology 2024



Jiaxi Cao (Jesse) 
(University of Cambridge, UK)
Contributions
Co-organizer of Math & HEP Seminars



Robinson Mancilla 
(UC Santa Barbara, USA)
Contributions
Lecturer for Gauge/Gravity Duality
2024



Miroslava Mossol 
(Lithuanian Gutenberg University of Mainz, DE)
Contributions
Organizer of Conference for Women
in Physics 2024
TA for Geometry and Topology in
Physics 2023



Marta Fuentes 
(IFT Madrid)
Contributions
TA for Theoretical Particle Physics
course 2024



Marti Berenguer 
(Universidad de Santiago de Compostela)
Contributions
TA for Gauge/Gravity Duality 2024



Ronald Cortes 
(SISSA, IT)
Contributions
TA for Condensed Matter Field
Theory 2024

Big thanks to all of them!!

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Physics Latam

ADVANCED LECTURES ON
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**International Centre
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Thank you to the ICTP and PWF for bringing physics and mathematics to developing countries and for supporting the other amazing projects today!

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“

**We build too
many walls and
not enough
bridges.**

Sir Isaac Newton

Volunteer with us!

PhD students, postdocs, and professors
are highly encouraged to participate and help us bring advanced and current topics to students in developing countries!