



The Abdus Salam
International Centre
for Theoretical Physics
Physics Without Frontiers



Physics Latam 



ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATH

Physics Latam:

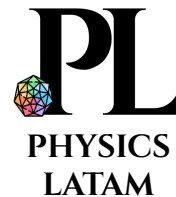
Advanced Lectures on
Theoretical Physics & Math

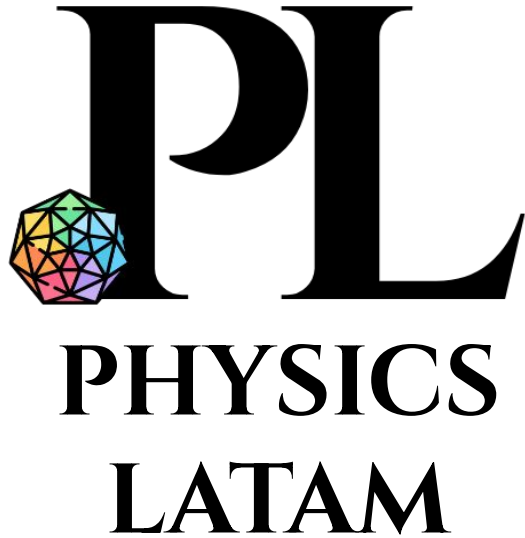
— An ICTP Physics Without Frontiers Project —

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
(YMSC, Tsinghua University)
(ICTS, Tata Institute of Fundamental Research)





Physics LATAM is a non-profit project founded 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.

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

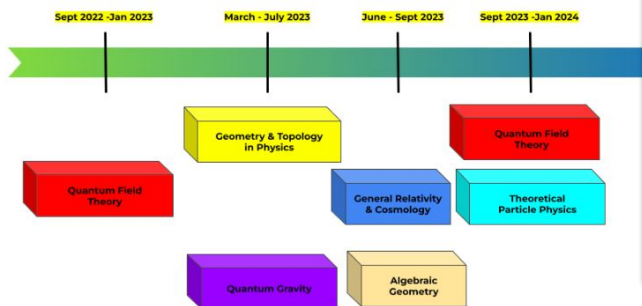
The project aims to build a strong and diverse network of physicists and mathematicians in Latin America who can make meaningful contributions to the advancement of science worldwide.

Overview

Physics Latam
ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATH

- Courses and mini courses on Theoretical Physics & Math.
- Seminars with international professors.
- Target public: Latin America undergrad and grad students.

Advanced Lectures on Theoretical Physics



The Abdus Salam 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 (BONN UNIVERSITY)

INTRODUCTORY MASTER CLASS ON QFT
PROF. FREDDY CACHAZO (DEMETRIUS INSTITUT)

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, LGBTQ+, and other underrepresented groups.

WEBSITE: <https://indico.ictp.it/event/9396/> APPLICATIONS UNTIL 28th AUGUST: <https://forms.gle/1CPCPh9i8eV7E77>

The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 7TH 2023 | 10-12 (GMT+4)

Quantum Gravity

LECTURER: RUBEN CAMPOS DELGADO
ICTP (UNIVERSITÄT BONN)

The course will be taught in English everyone interested is encouraged to apply

INTRODUCTORY MASTER CLASS
PROF. IRENE VALENZUELA (ICREA IITP)

PROF. GASTON GIRIBET (NEW YORK UNIVERSITY, USA) PROF. JUAN PEDRAZA (LET MADRID, ES)

PROJECT COORDINATOR
DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTP (TATA INSTITUTE OF FUNDAMENTAL RESEARCH)

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WEBSITE: <https://indico.ictp.it/event/10346/> Applications until 28th February: <https://forms.gle/1mV2w9w6645u6A>

The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 15TH 2023 | 10-12 (GMT+4)

GEOMETRY AND TOPOLOGY IN PHYSICS

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

SPECIAL GUEST LECTURERS

Prof. Ambarish Pokot (Central Univ. of Exeter, UK)
Prof. Mauricio Hongo (Tsinghua University, China)
Prof. Alessandro Tomasiello (University of Milano, Biella, Italy)

Prof. Nicolai Reshetikhin (Tsinghua University, IC Research)
Prof. Xenia de la Ossa (University of Oxford, UK)
Prof. Nikita Nekrasov (Stony Brook University, Simons Center for Geometry and Physics)

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WEBSITE: <https://indico.ictp.it/event/10094/> Applications until 28th February: <https://forms.gle/1mV2w9w6645u6A>

The Abdus Salam 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 (GMT+4)

GENERAL RELATIVITY AND COSMOLOGY

LECTURERS
ESTEBAN CHALBAUD (University of Coimbra, PT) DANIEL GALVIZ (YMSC (Tsinghua University) ICTP (Tata Institute of Fundamental Research))

INTRODUCTORY MASTER CLASS
Prof. Fernando Quevedo (DAMTP (University of Cambridge)) Prof. Alejandra Castro (DAMTP (University of Cambridge))

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WEBSITE: <https://indico.ictp.it/event/10346/> APPLICATIONS UNTIL 28th FEBRUARY: <https://forms.gle/1mV2w9w6645u6A>

The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

Mathematics & High Energy Physics Seminar

ORGANIZERS
DANIEL GALVIZ (YMSC (Tsinghua University) ICTP (Tata Institute of Fundamental Research)) JIAXI CAO (TESSE) (University of Cambridge)

SEMINARS TAKE PLACE ONLINE, IN ENGLISH OR SPANISH!

Zoom ID: 835 9644 8829
Password: HEPLatam
Time: Usually 10-12 (GMT-4) From May 12th 2023.
Visit PhysLatam.com/Seminar for more details.

The Abdus Salam International Centre for Theoretical Physics Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

Physics @Night

ORGANIZERS
ESTEBAN CHALBAUD (LIP-Coimbra (University of Coimbra, PT)) FABIOLA CAÑETE LEYVA (Stony Brook University)

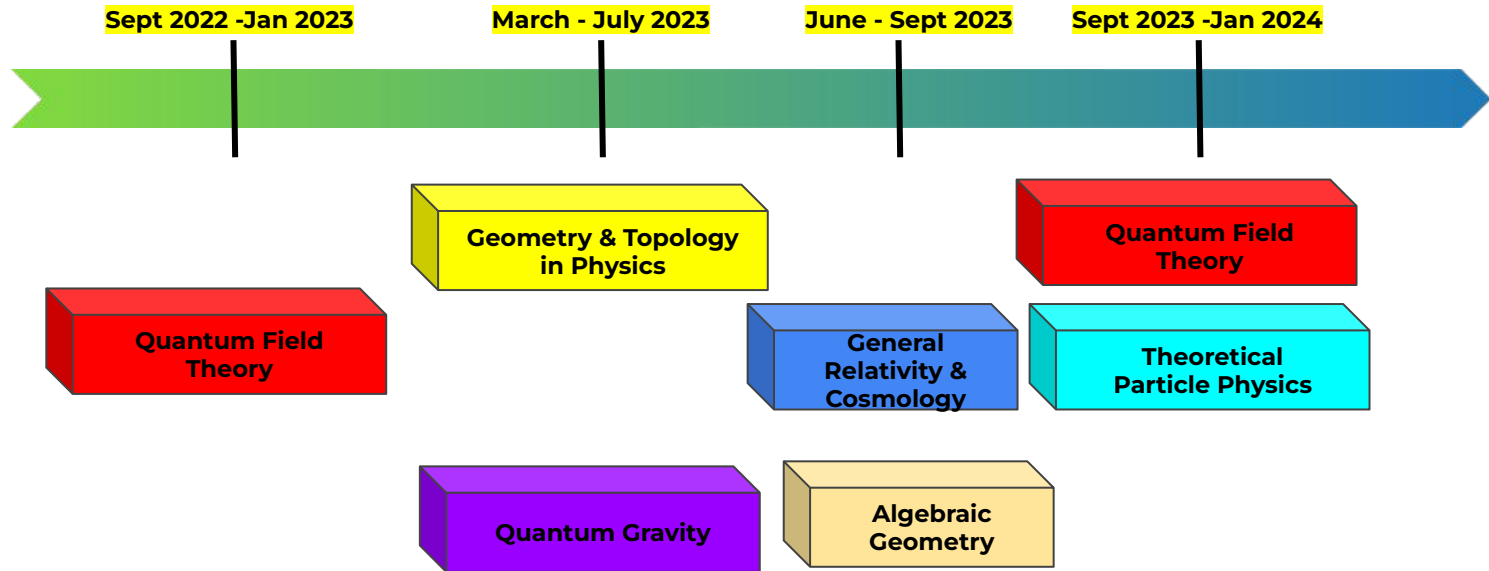
DANIEL GALVIZ (YMSC (Tsinghua University) ICTP (Tata Institute of Fundamental Research))

SEMINARS TAKE PLACE ONLINE, IN ENGLISH OR SPANISH!

Zoom ID: 835 9644 8829
Password: HEPLatam
Time: At night time Latam.
Visit PhysLatam.com/Night for more details.

Our 1st Year 2022-2023

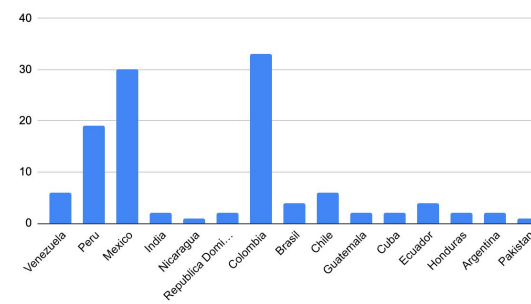
Advanced Lectures on Theoretical Physics



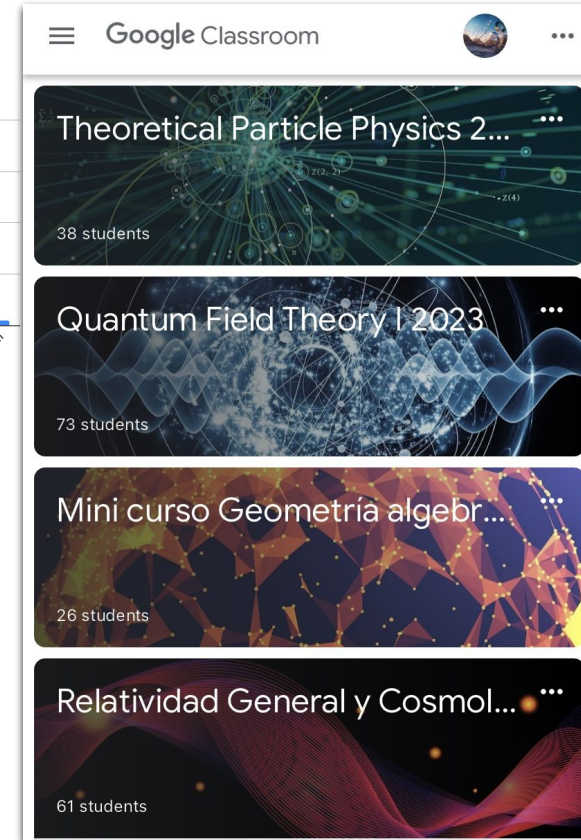
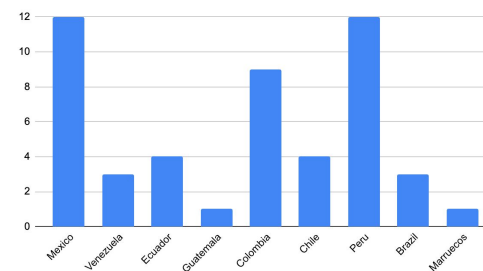
Participation

- **Reach over 350+ students!**
- Students from across Latin America!
- Seminars led by professors from universities in Europe, the United States, China, India, Australia and Latin America.
- We strive for gender balance in all our activities!
- All activities are conducted online.
- Lectures and seminars are available in Spanish or English.

GR 2023



G&T



People

- Lecturers: 3
- Teaching Assistants: 9
- Project Assistants: 3



Daniel Galviz 
YMSC (Tsinghua University, CN)
ICTS (Tata Institute of Fundamental
Research, IN)

Contributions

Founder and lecturer

Physics Latam
ADVANCED LECTURES ON
THEORETICAL PHYSICS & MATH




Ruben Campos Delgado 
(Bethe Center for Theoretical Physics
& Uni Bonn, DE)

Contributions

- Lecturer for Quantum Gravity 2023
- TA for Quantum Field Theory 2022



Esteban Chalbaud 
LIP-Coimbra
(University of Coimbra, PT)

Contributions

- Lecturer for Theoretical Particle Physics 2023
- Lecturer for General Relativity & Cosmology 2023



Miroslava Mosso Rojas 
(Johannes Gutenberg University of Mainz, DE)

Contributions

- TA for Geometry and Topology in Physics 2023



Sofia Di Gennaro 
(Yangzhou University, CN)

Contributions

- TA for Quantum Field Theory I 2023



Kateryna Radchenko 
(Deutsches Elektronen-Synchrotron DESY, DE)

Contributions

- TA for Theoretical Particle Physics 2023



Francisco Villalca 
(Pure Mathematics University of Waterloo, CA)

Contributions

- TA for Geometry and Topology in Physics 2023



Fabiola Cañete Leyva 
(Stony Brook University, USA)
Co-organizer of Physics @Night Seminars



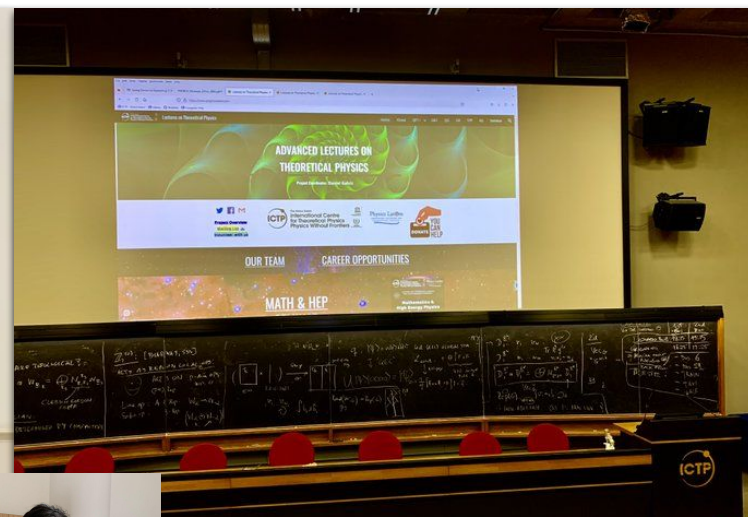
Johann Quenta Raygada 
(SISSA, IT)

Contributions

- TA for Quantum Field Theory I 2023

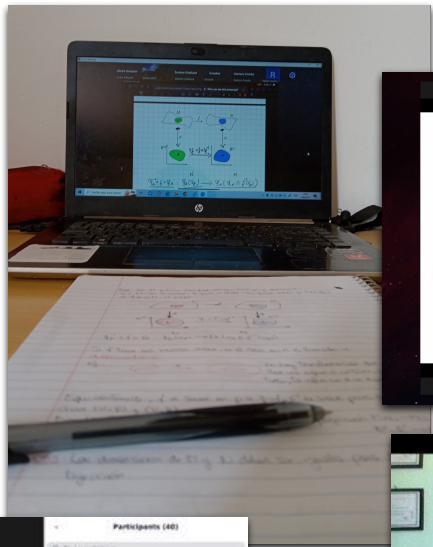
- Full list at the end: <https://www.physicslatam.com/about>

Our team strives to attend international schools and conferences so that we can integrate the knowledge learned there into our lectures.



Mentoring

- Assisting students from developing countries with knowledge acquisition and networking opportunities.
- Promoting scholarship opportunities worldwide.



Ecuaciones de Dispersión

Los matemáticos han definido un espacio que se parece bastante. Es el espacio de todas las posibles superficies de Riemann con cuatro punturas (puntos especiales). Lo malo es que es un espacio de dimensión 1 y no dos como lo es el espacio de invariantes cinemáticos.

$S = (K_x + K_z)^2$ $t = (K_x + K_z)^2$

Fabrice-Roberts '72 (Unpublished), Gross-Mende '86, Witten '04, Fialkin '08, Malchenko-Olesen '09, F.C. '12, K.-H. Yoon '13

PFW-QFT
2022

Recording

A participant has enabled Closed Captioning

Who can see this transcript? Recording On

El espectro es el que define los niveles
Y su forma es una representación de la energía

$$\Lambda_v^m = (e^{\omega})^m$$

$$D(\lambda) = \exp\left(\frac{i}{2} \omega^m \sum_{\mu} \dots\right)$$

Participants (40)

- BOG Daniel Galvis (Host)
- Guille Tabares (Host)
- Guille Silva
- Abdel Isabeth
- Alfonso Fernández
- Alan Rodolfo Hurtado Rodríguez
- Angelia Rivas
- arnethotomesevazquez
- Anthony Canales
- Carroll
- Cristian Gallegos
- edgarprecado
- Fabian S.
- Fernando Chul
- Francisco Jiménez
- Francisco Vilasis
- Franklin Limaico
- Gabriel Barros
- GASTON ALVAREZ
- Gerson vargas
- Guilherme Aliski

Alexandro Tomasiello (Host, internal)

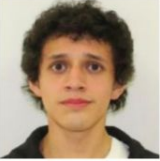


Advanced Lectures on Theoretical Physics

STUDENTS



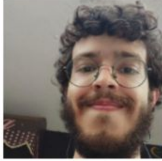
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Physics Without Frontiers



Carlos Arriaga 
(National Autonomous
University of Mexico, MX)



Sanam Azarnia 
(Shahid beheshti University,
IR)



Daniel Azevedo 
(Universidade Federal de
Viçosa, BR)



Pedro Bairrão 
(Universidade de São Paulo
(USP), BR)



Gabriel Barrios 
(University of San Carlos of
Guatemala, GT)



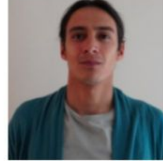
Matias Briceño 
(Pontifical Catholic University
of Chile, CL)



Alvaro Martinez 
(University of Salamanca, SP)



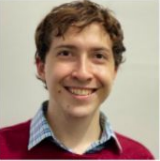
Godwin Martin 
(International Centre for
Theoretical Sciences, IN)



Irvin Matinez 
(University of Cape Town, ZA)



Deeshani Mitra 
(St Xavier's College, Kolkata,
IN)



Juan Cabrera 
(National Autonomous
University of Mexico, MX)



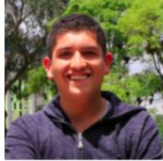
Jianxi Cao 
(Rice University, USA)



Ethan Campos 
(National Autonomous
University of Mexico, MX)



Juan Campos 
(University of Leipzig, DE)



Camilo Daza 
(University of Los Andes, CO)



Sofia Di Gennaro 
(Yangzhou University, CN)



Anibal Neira 
(University of Concepción, CL)



Marcelo Oyarzo 
(University of Concepción, CL)



Mário Raia 
(Universidade Federal de São
Carlos, BR)



Deepali Singh 
(University of Iceland, IS)



Nicolas Gomez 
(National University of
Colombia, CO)




Jayesh Jain 
(National Institute of
Technology, Rourkela, IN)



Dinil Jose 
(National Institute of
Technology, Calicut, IN)



Sagar Kumar 
(S.N. Bose National Centre for
Basic Sciences, IN)



Shivam Kumar 
(International Centre for
Theoretical Sciences, IN)




Jeison Lenis 
(The University of Valle, CO)



Juan Morales 
(University of Los Andes, CO)



Madhav Sirohi 
(International Centre for
Theoretical Sciences, IN)



Daniel Montero 
(National Autonomous
University of Mexico, MX)



Harpreet Singh 
(Indian Institute of
Technology, Guwahati, IN)

GEOMETRY AND TOPOLOGY IN PHYSICS

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



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Advanced Lectures on Theoretical Physics

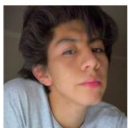
STUDENTS



Andrea Aguilar 🇲🇽
(University of Guanajuato,
MX)



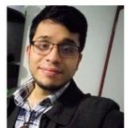
Manuel Alva 🇲🇽
(National University of Trujillo,
PE)



Roger Ayala 🇲🇽
(Southern Federal University,
RU)



Jhon Basto 🇲🇽
(National University of
Colombia, CO)



David Bellorin 🇲🇽
(University Simón Bolívar, VE)



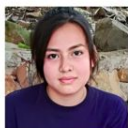
Jahaira Bonifacio 🇲🇽
(National University of San
Marcos, PE)



Nicolas Caceres 🇲🇽
(Pontifical Catholic University
of Chile, CL)



Edgar Condori 🇲🇽
(University of Guanajuato,
MX)



Krystifer Campos 🇲🇽
(University of Valle, CO)



Frank Chico 🇲🇽
(National University of San
Marcos, PE)



Wagner Coelho 🇲🇽
(Federal university of Ceará,
BR)



Salim Davila 🇲🇽
(University of Los Andes, VE)



José Pérez 🇲🇽
(University of Guanajuato, MX)



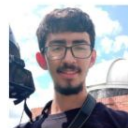
Cristian Gallegos 🇲🇽
(Autonomous University of
Nuevo León, MX)



Fernando García 🇲🇽
(Yachay Tech University, EC)



Jean Gómez 🇲🇽
(University Simón Bolívar, VE)



Juan Guarín 🇲🇽
(Institual University of
Santander, CO)



Allan Hurtado 🇲🇽
(University of San Carlos of
Guatemala, GT)



Franklin Limaico 🇲🇽
(Yachay Tech University, EC)



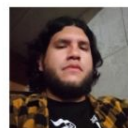
Victor Lopez 🇲🇽
(University of Guanajuato,
MX)



Loreto Osorio 🇲🇽
(Pontifical Catholic University,
MX)



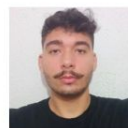
Cristian Martínez 🇲🇽
(The University of Valle, CO)



Diego Suárez 🇲🇽
(National University of
Colombia, CO)



Steven Perlaiza 🇲🇽
(The University of Valle, CO)



Genivaldo Pinheiro 🇲🇽
(Federal University of Ceará,
BR)



Adali Venegas 🇲🇽
(National Polytechnic School,
EC)



Cristian Rivera 🇲🇽
(National University of San
Marcos, PE)



Christian Portilla 🇲🇽
(National University of Trujillo,
PE)



Edga Preciado 🇲🇽
(University of Guanajuato,
MX)



Román Rodríguez 🇲🇽
(Autonomous University of
Nuevo León, MX)



Jesús Román 🇲🇽
(Autonomous University of
Nuevo León, MX)



Jesús Rondón 🇲🇽
(National University of
Engineering, PE)



William Salazar 🇲🇽
(The University of Valle, CO)



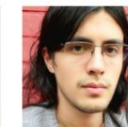
Fabian Simijaca 🇲🇽
(Federal University of Ceará,
BR)



Juan Sepulveda 🇲🇽
(National University of
Colombia, CO)



Annette Torres 🇲🇽
(University of Guanajuato, MX)

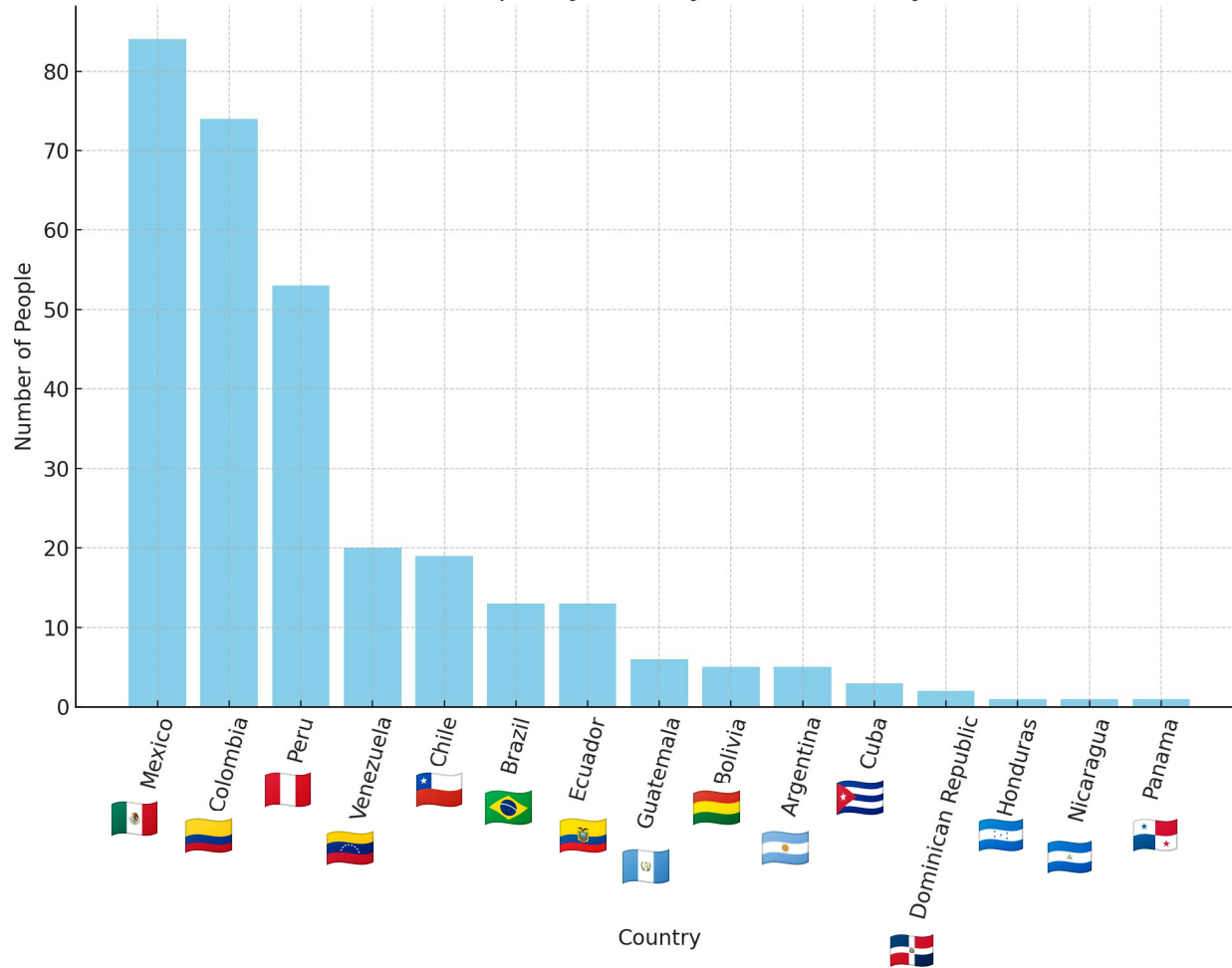


Luis Urrutia 🇲🇽
(University of Concepción, CL)



César Valladares 🇲🇽
(Autonomous University of
Nuevo León, MX)

Distribution of People by Country Enrolled at Physics LATAM



Past courses



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

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 14TH 2022 | 10-12AM

QUANTUM FIELD THEORY

LECTURER: DANIEL GALVIZ
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BCTP (BONN UNIVERSITÄT)

INTRODUCTORY MASTER CLASS ON QFT
PROF. FREDDY CACHAZO
(PERIMETER INSTITUTE)

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WEBSITE: <https://indico.ictp.it/event/9999/> APPLICATIONS UNTIL 1ST AUGUST: <https://forms.gle/4JH18S5LW27>

30 Students



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

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 7TH 2023 | 10-12 (GMT-4)

Quantum Gravity

LECTURER: RUBEN CAMPOS DELGADO
BCTP (UNIVERSITÄT BONN)

The course will be taught in English everyone interested is encouraged to apply

INTRODUCTORY MASTER CLASS
PROF. IRENE VALENZUELA
(CERN & IFT, CH)

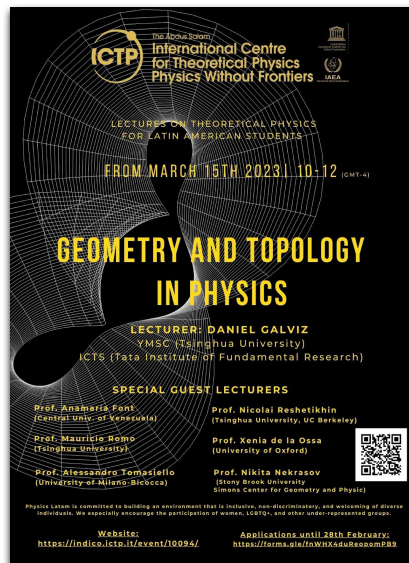
PROF. GASTON GIRIBET (NEW YORK UNIVERSITY, USA) PROF. JUAN PEDRAZA (IFT MADRID, ES)

PROJECT COORDINATOR
DANIEL GALVIZ
YMSC (TSINGHUA UNIVERSITY)
ICTS (TATA INSTITUTE OF FUNDAMENTAL RESEARCH)

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WEBSITE: <https://indico.ictp.it/event/10166> Applications until 28th February: <https://forms.gle/mV24e9Mw655LkVDA>

30 Students



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LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM MARCH 15TH 2023 | 10-12 (GMT-4)

GEOMETRY AND TOPOLOGY IN PHYSICS

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

SPECIAL GUEST LECTURERS

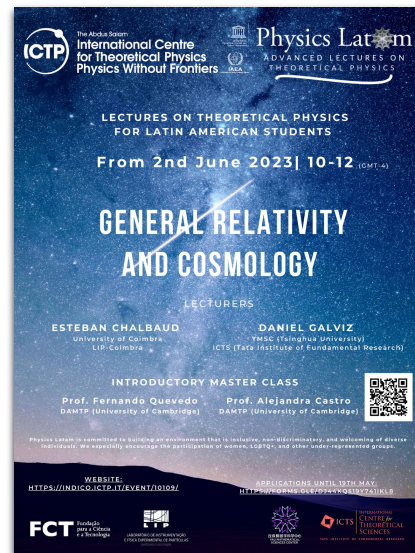
Prof. Anaherik Panik (Central Univ. of Venezuela)
Prof. Mauricio Romo (Tsinghua University)
Prof. Alessandro Tomasiello (University of Milano Bicocca)

Prof. Nicolai Reshetikhin (Tsinghua University & Berkeley)
Prof. Xenia de la Ossa (University of Oxford)
Prof. Nikita Nekrasov (Stony Brook University, Simons Center for Geometry and Physics)

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Website: <https://indico.ictp.it/event/10094/> Applications until 28th February: <https://forms.gle/4WnK4du8es0mp8a>

40 Students



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

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

From 2nd June 2023 | 10-12 (GMT-4)

GENERAL RELATIVITY AND COSMOLOGY

LECTURERS

ESTEBAN CHALBAUD (University of Cambridge) DANIEL GALVIZ (YMSC (Tsinghua University))
DANIEL GALVIZ (YMSC (Tsinghua University)) DANIEL GALVIZ (YMSC (Tsinghua University))

INTRODUCTORY MASTER CLASS

Prof. Fernando Quevedo (University of Cambridge) Prof. Alejandra Castro (DMTP (University of Cambridge))

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WEBSITE: <https://indico.ictp.it/event/10109/> APPLICATIONS UNTIL 15TH MAY: <https://forms.gle/4WnK4du8es0mp8a>

FCT FUNDACION CENTROS DE INVESTIGACIONES CIENTÍFICAS

ICTS TATA INSTITUTE OF FUNDAMENTAL RESEARCH

CENTRE FOR THEORETICAL SCIENCES

60 Students

Students cannot take more than one course at a time.

Students also present seminars!



Every course is evaluated with **assignments** (60%), **seminars** (10%) and a **final exam** (30%).



Seminars for QFT

Nombre	Tema
Viernes 27 de enero 2023 10-12 GMT-4	
David Cardona Ochoa	Fermiones de Majorana y Weyl
Fabian Leonardo Simijaca Salcedo	Simetría CPT
Goosline Pereira	Ecuaciones de Schwinger–Dyson
Gabriel Barrios	Identidad de Ward–Takahashi e identidad de Ward
Héctor Verduzco	Invariancia de Gauge y líneas de Wilson
Fernando Garcia	Teoría de Gauge no abelianas (Teorías de Yang-Mills)
Kevin Cortés	Interacciones electro débiles
Sabado 28 de enero 2023 10-12 GMT-4	
Juan Augusto Cabrera Padilla	Interacciones nucleares fuerte
Rafael Medina	Ruptura espontánea de la simetría (Mecanismo de Higgs)
Salim Davila	Modelo estándar
Jonnathan Pineda	Polarización de vacío en QED
Esperanza Geraldine Cabrera	El momento magnético anómalo
Allan Rodolfo Hurtado Rodríguez	Renormalización masiva
Cristian Joel Gallegos Yañez	Teoría de la perturbación renormalizada



Seminars for G&T

Miercoles 12 July	Temas
William Esteban Salazar	Symplectic manifolds
Genivaldo Vasconcelos	Killing vector fields
Cristhian David Martinez	Gauss' Theorema Egregium
Román Hazael Rodríguez Herrera	The Gauss-Bonnet Theorem
Cristian Joel Gallegos Yañez	Calabi-Yau in String theory
Steven Sanchez Perlaza	Compactifications in String Theory
Sabado 15 July	
Edgar Condori Pozo	The Aharonov–Bohm effect
Jean Franco Gómez	Hopf Algebras
Víctor Manuel López Ramos	Cohomology of Fiber Bundles
Krystifer Campos	Blowing Up
Diego Suárez	Instantons
Allan Rodolfo Hurtado Rodríguez	Morse theory



Time: Wednesday 12 & Saturday 15 July 10-12 (GMT-4)
 Zoom ID: 835 9644 8829
 Password: HEPLatam



Seminars for RG

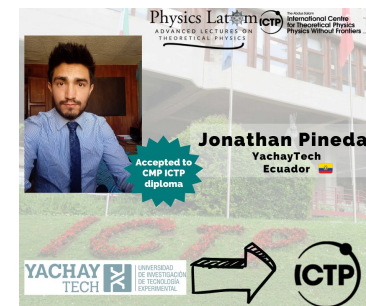
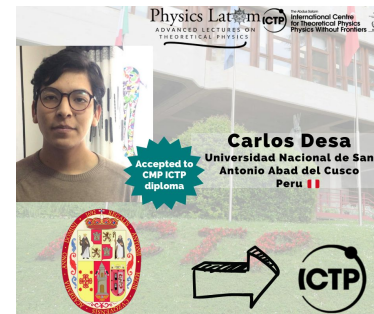
Sábado 23 de Septiembre	Temas
Jhon Sebastián Moreno Triana	Materia oscura
Dennis Katherine Viveros Sanabria	Energía oscura
Félix Ibarra Castor	Teorías modificadas de relatividad general
Johor David Peñalba Quispitupa	La ecuación de la desviación geodesica
Daniel Perdomo	La ecuación de Raychaudhuri
Allan Rodolfo Hurtado Rodríguez	Superficies de Cauchy
Javier Molina Ariza	Teoremas de agujeros negros
Goosline Pereira	Efectos cuánticos en campos gravitacionales



Time: Saturday 23 September 10-12 (GMT-4)
 Zoom ID: 835 9644 8829
 Password: HEPLatam

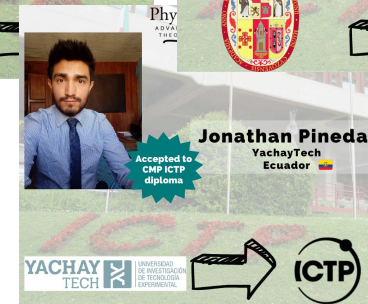
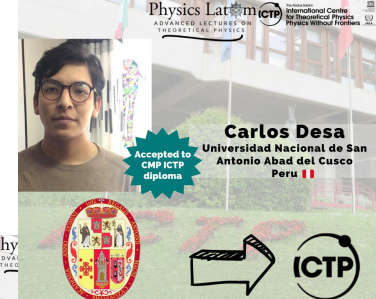
Students associated with Trieste are enrolling @Physics Latam

- **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
 - Johann Quenta Raygada @SISSA HEP (Previously at ICTP-HECAP)
- **General Relativity course**
 - Carlos Desa @ICTP-Diploma CMP
- **Theoretical Particle Physics course**
 - Weyner Ccuero Montalvo @SISSA CMP (Previously at ICTP-CMP)



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 - **Carlos Desa** @ICTP-Diploma CMP
- **Theoretical Particle Physics course**
 - **Weyner Ccuero Montalvo** @SISSA CMP (Previously at ICTP-CMP)



This year, 6 Latin American students were accepted into the ICTP Diploma (HECAP, CMP, MTH).
5 of these students were enrolled @Physics Latam.



Student feedback

(We made our surveys anonymous!)

- "Everyone, Daniel, Esteban, Irvin, and Mauricio, showed genuine interest in our learning and even in academic subjects outside the course".
- "All the homeworks were a complete challenge, I enjoyed them too much and learned about topics that were even beyond the material covered in the virtual classes".
- **"The homeworks and problems complemented each other; something great was the connection between the exercises! Some helped you to solve others and to understand the course. The final test was excellently prepared"**.
- "Only thanks for offering a quality course and looking forward to repeating the experience in the future course that I will attend at Physics latam".
- "The course RG meet and surpassed my expectations".
- **"The organization and the teaching of the course has been awesome, so I would like to thank you for giving me the opportunity to participate in the course"**.
- "The quality was very high, of course, the lecture met my expectations".
- "The course met my expectations and exceeded them".
- "Ruben was an excellent teacher".
- "The two teaching assistant were always very attentive and made themselves understood at all times and gave some very good tips for solving problems".
- "Chalbaud is an excellent instructor, you can tell that he loves the topics he explains and transmits them very well".
- **"Algebraic Geometry was difficult but I learn a lot"**.
- "Learned a lot . Want more kind of seminars like this".
- "Esteban explained very well and tried to make us understand everything well."
- **"Simply thank you for this amazing course! For your dedication, I take with me an experience I will never forget! Thank you!!!"**
- **"Homework took too much time."**



"The course was a very positive experience for me, beyond academic development. I joined the course at a complicated emotional time and I am leaving it with high spirits. What you are doing for science in Latin America is admirable, and I hope to give back what you have provided me at some point. Thank you".

- "The course is really quite good, I wouldn't change anything".
- "The Geometry and Topology course met my expectations and upheld the standards of a postgraduate-level course".
- "Exceeded my expectations".
- "The course showed some of the most interesting topics in quantum gravity, while at the same time giving light to some of the problems one might expect to encounter in future investigations".
- **"Now I want to do PhD in Quantum Gravity"**.
- "Loved it".
- **"Some classes were hard for me and it was difficult for me to understand them."**
- "I recommend this QFT course. The topics were really interesting and the insight it gives for future research makes the course a a must-see".
- "Daniel is very good, you can see his mastery in each of the topics he teaches, he has a lot of experience and is very pleasant in all of them".
- "Daniel is attentive, very knowledgeable about the subject, good feedback, good organization and explanation of ideas/concepts".
- "Daniel's classes were great, excellent instructor, he knows the subject".
- "Esteban's classes were excellent. It has a lot of breadth and mastery of the course topics, in addition, it complements with experimental and computational information, papers, references, etc. that complement the course content in a good way".
- "Daniel is excellent. An impeccable theoretical framework and a formality that provides the perfect contrast with the instructor Chalbaud. They complement each other harmoniously".

Summer and current Winter courses

ADVANCED MATH LECTURE FOR LATIN AMERICANS

Organised by Physics Latam
Online

Mini Course
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Daniel Galviz
Francisco Villacis

August 2023
1st to 31st

Visit PhysicsLatam.com/AG for more details. Applications: rb.gy@zbc6v

30 Students

Physics Latam
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Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

24 OCT. - 16 NOV. 2023 | 15-17 (GMT-4)

Classical & Quantum Black Holes

LECTURER: RUBEN CAMPOS DELGADO (BCTP (UNIVERSITÄT BONN))
GUEST LECTURER: THOMAS HARTMAN (CORNELL UNIVERSITY)

The mini course will be taught in English everyone interested is encouraged to apply

Further information: PhysicsLatam@ICTP.it
Organizer: Daniel Galviz

Website: <https://PhysicsLatam.com/bh>
Applications until 13th October: <https://forms.gle/TX7eV8KA7249x2e8>

20 Students

Physics Latam
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Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 13TH 2023 | 10-12AM (GMT-4)

QUANTUM FIELD THEORY I

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

Introductory Master Class on QFT
PROF. JUAN MALDACENA (IAS INSTITUTE FOR ADVANCED STUDY)

Website: <https://indico.ictp.it/event/10318>
Applications until 31st August: <https://forms.gle/NV0Yn6tCNP4F8BZ7>

70 Students

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Physics Without Frontiers

ADVANCED LECTURES ON THEORETICAL PHYSICS

LECTURES ON THEORETICAL PHYSICS FOR LATIN AMERICAN STUDENTS

FROM SEPT. 12TH 2023 | 10-12AM (GMT-4)

THEORETICAL PARTICLE PHYSICS

LECTURERS: ESTEBAN CHALBAUD (University of Coimbra), DANIEL GALVIZ (VMSC (Tsinghua University)), ICTS (Tata Institute of Fundamental Research)

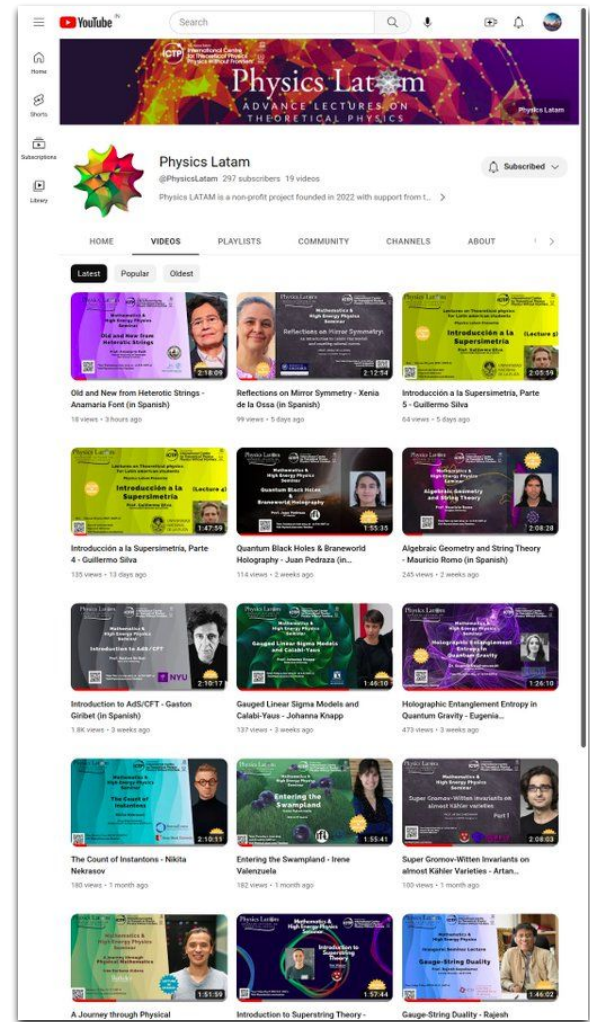
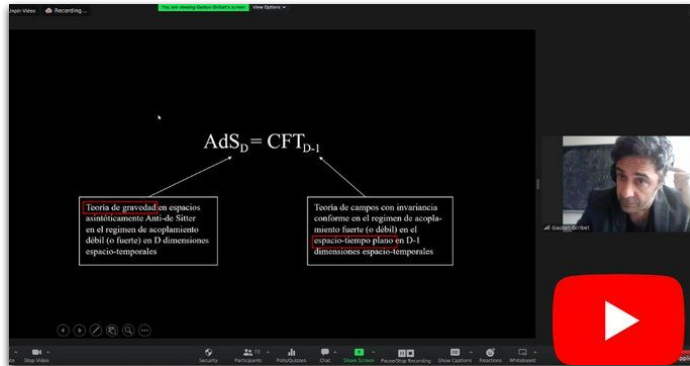
Introductory Master Class
PROF. LUIS ÁLVAREZ-GAUMÉ (SIMONS CENTER, STONY BROOK UNIVERSITY)

Website: <https://indico.ictp.it/event/10318/>
Applications until 31st August: <https://forms.gle/2JAG0P3P3Y49W8>

40 Students

Students cannot take more than one course at a time.

Seminars, seminars and
more seminars!
all at our Youtube channel!
@PhysicsLatam



This image is a grid of 50 individual seminar 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.

Row 1:

- Mathematics & High Energy Physics Seminar: Inaugural Seminar Lecture Gauge-String Duality** by Prof. Rajesh Gopakumar (ICTP-TPB). Friday 5 May 2023 10:00 - 12:00 (GMT+4).
- Lectures on Theoretical Physics for Latin American students: Introducción a la Supermetría** by Prof. Guillermo Silva (Universidad Nacional de La Plata). Monday 24 May 2023 10:00 - 12:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: A Journey through Physical Mathematics** by Nils-Burhard Aldana (Berkeley). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Entering the Swampland** by Prof. Nikita Nekrasov (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: The Count of Instantons** by Irene Caroniu (Shanghai Jiao Tong University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Gauged linear sigma models and Calabi-Yaus** by Prof. Johanna Knapp (University of Bonn). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Holographic Entanglement Entropy in Quantum Gravity** by Dr. Eugenio D'Ada-Franceschi (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Introduction to AdS/CFT** by Prof. Gaston Giribet (NYU). Monday 22 May 2023 09:00 - 11:00 (GMT+4).

Row 2:

- Mathematics & High Energy Physics Seminar: Algebraic Geometry and String Theory** by Prof. Mauricio Romo (Yonsei University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Quantum Black Holes** by Prof. Juan Pedraza (IFT). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Reflections on mirror symmetry: An introduction to Calabi-Yau moduli and counting rational curves** by Prof. Ken-ichi Ueda (Oxford). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Old and New from Heterotic Strings** by Prof. Anamaria Font (Central University of Venezuela). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Matrix Models and String Theory** by Olga Papadoulaki (Pittsburgh Institute). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Toric Geometry for String Theory** by Prof. Alessandro Tomasiello (Pittsburgh Institute). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Topological Recursion** by Sandra Giacchetto (Pittsburgh Institute). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Tests of GR with Cosmology** by Prof. Lavinia Heisenberg (ETH Zurich). Monday 22 May 2023 09:00 - 11:00 (GMT+4).

Row 3:

- Mathematics & High Energy Physics Seminar: Essential Algebraic Tools for Algebraic Geometry** by Dmitri Prokhorov (Pittsburgh Institute). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Geometric Langlands correspondence** by Prof. Dennis Gaitsgory (Harvard University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Bordisms and Quantum Gravity** by Matilda Delgado (IFT). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Cosmology and String Theory** by Prof. Fernando Quevedo (Cambridge University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Classification of Conformal Field Theory in Two Dimensions** by Prof. Sunil Mukhi (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Physics Latam presents: GENERAL RELATIVITY AND COSMOLOGY: Black Holes** by Prof. Alejandra Castro (University of Cambridge). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Spec and Proj** by Prof. Richard Thomas (London College University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Enumerative Geometry: Gromov-Witten Theory and String Theory** by Daniel Galvez (University of Cambridge). Monday 22 May 2023 09:00 - 11:00 (GMT+4).

Row 4:

- Mathematics & High Energy Physics Seminar: Algebraic Geometry of Kähler Varieties** by Prof. Daniel Huybrechts (Bonn University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Super Gromov-Witten invariants on almost Kähler varieties** by Prof. Aram Sheikhan (Harvard University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Hilbert schemes of points on surfaces** by Lothar Göttsche (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Algebraic geometry and Vafa-Witten theory** by Prof. Martin Kool (University of Cambridge). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Variations of Hodge structures and Geometric Applications** by Prof. Claire Voisin (Sorbonne University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Gopakumar-Vafa type invariants of Calabi-Yau 4-folds** by Yalong Gao (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Geometry of Landau-Ginzburg models and Homological Mirror symmetry** by Dr. Catherine Gaiotto (UC Berkeley). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: The notion of space in Grothendieck's geometry: from schemes to the geometry of forms** by Alexander Gruz (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).

Row 5:


- Mathematics & High Energy Physics Seminar: Scattering Amplitudes: Polylogarithms and Beyond** by Matt von Hippel (UC Davis). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Moduli spaces in Quantum Field Theory and String Theory** by Tigran Kimura (Harvard University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Quantum Geometric and algebraic aspects of supersymmetric Gauge theory** by Tigran Kimura (Harvard University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Spectral networks and skein modules** by Sunghyuk Park (Harvard University). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Axiomatic Quantum Field Theories** by Prof. Ivan Contreras (University of Chicago). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Emergence of Spacetime** by Prof. Thomas Hartman (University of Cambridge). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Baryogenesis: The Generation of the Matter-Antimatter Asymmetry in the Universe** by Valeriu Dancu (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).
- Mathematics & High Energy Physics Seminar: Generalized Symmetries in QFT** by Prof. Thomas Dumitrescu (ICTP). Monday 22 May 2023 09:00 - 11:00 (GMT+4).

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CRISTÓBAL CORRAL
ARTURO PRAT UNIVERSITY



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ONLINE ZOOM MEETING
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PROF. MARK GROSS
University of Cambridge

5 lectures

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- Wed. 27 Sept.
- Mon. 02 Oct.
- Wed. 04 Oct.
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SuperString Theory

16 Oct. - 25 Nov. 2023

10 Lectures

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SuperGravity

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UNIVERSITY OF TEXAS AT AUSTIN



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6 lectures, TBA. 2024

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SEMINARS
MATHEMATICS AND
HIGH ENERGY PHYSICS

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MINI COURSE

CURRENT STATUS ON BLACK HOLES AND INFORMATION PARADOX

PROF. SUVRAT RAJU
ICTS-TIFR

LECTURES

TBA 2024

ONLINE ZOOM MEETING
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Statistical Mechanics

BUENDÍA GLORIA MARÍA
SIMÓN BOLÍVAR UNIVERSITY



**PHYSICS
@Night**

5 lectures, Feb. 2024

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THEORETICAL PHYSICS

Quantum Chromodynamics

MARCELO LOEWE
PONTIFICIA UNIVERSIDADE CATÓLICA DE CHILE



**PHYSICS
@Night**

5 lectures, TBA. 2024

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SEMINARS
MATHEMATICS AND
HIGH ENERGY PHYSICS

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MINI COURSE

FLUXES AND HOMOLOGY IN STRING THEORY

PROF. DANIEL WALDRAM
IMPERIAL COLLEGE LONDON

LECTURES

MARCH TBA 2024

ONLINE ZOOM MEETING
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SEMINARS
MATHEMATICS and
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Mini course

Sieberg-Witten Theory

Prof. Elli Pomoni
DESY

5 lectures

- April TBA 2024
- April TBA 2024
- April TBA 2024
- April TBA 2024
- April TBA 2024

ONLINE ZOOM MEETING
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PROF. INAKI GARCIA ETXEBARRIA
DURHAM UNIVERSITY

8 LECTURES

JAN. - FEB. 2024

ONLINE ZOOM MEETING
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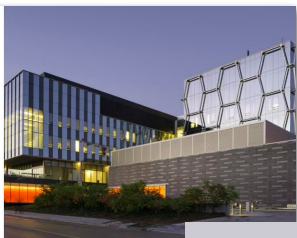
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Promoting academic opportunities



Oportunidades en IQC

Maria Cristina Rodriguez



Oportunidades en Colonia/Bonn

Bonn Cologne Graduate School of Physics and Astronomy (BCGS)
Mateo Moreno Gonzalez



清华大学 Tsinghua University
丘成桐数学科学中心
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Estudios en China
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PhysicsLatam.com



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OPORTUNIDADES INTERNACIONALES DE POSGRADOS: CANADÁ Y ESPAÑA (LA CAIXA)

Karen Macías Cárdenas IFT UAM/CSIC Madrid

Physics Latam



OPPORTUNITIES IN USA

ICTP International Centre for Theoretical Physics

Postgraduate Diploma Programme

presentado por

Ronald Santiago Cortes Cantamaria
PhD student of Condensed Matter at SISSA



Jiayi Cao (Jesse)

Nov. 23, 2023



Weyner Cucciro
PhD student in Theory and Simulation of Condensed Matter



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 Jiayi Cao, U. Cambridge "Opportunities in USA"	 Weyner Cucciro, SISSA "SISSA"	 Ronald Cortes, SISSA "ICTP: Diploma"	 Daniel Galviz, Tsinghua U. "Tsinghua and China"
 Raquel Izquierdo, Perimeter "Perimeter Scholars International"	 Karen Macias, IFT Madrid "IFT Madrid"	 Mateo Moreno, U. Cologne "BCGS: Bonn, Cologne"	 Johann Quenta, SISSA "Math+Phys: Bourgogne"

23 November 2023
16-18:30 (GMT+4)
Online
Zoom ID: 835 9644 8829
Password: HEPLatam

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ICTP International Centre for Theoretical Physics Physics Without Frontiers
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www.Physicslatam.com/opportunities

2024

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Gravitation



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(University of Buenos Aires, AR)
Supergravity



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



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



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



Melissa Maldonado 
(Pontifical Catholic University of Chile, CL)
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Myriam Mondragón Ceballos 
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(More TBA)

PUBLIC TALK



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"Technologies in the Future of Theoretical Physics"



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Gravitation

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

Anamaria Font (The Central University of Venezuela)*
String Theory

Marta Losada (NYU Abu Dhabi)
Cosmology & Particles

Melissa Maldonado (Pontifical Catholic University of Chile)
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Myriam Mondragón Ceballos (UNAM)
Particle Physics

Carmen Nuñez (University of Buenos Aires)
Supergravity

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

Ana Maria 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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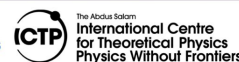
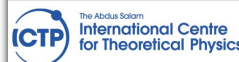
Topics

- Gravitation
- Quantum Field Theory
- Particle Physics
- String Theory
- Mathematical Physics
- AMO Physics
- Machine Learning
- Condensed Matter
- Cosmology
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Guest Speakers

- Alexander Altshuler (University of Cologne)
- Johanna Bruneauer (University of Würzburg)
- Grigoris Horava-Smith (Ulrecht University)
- Rohit Mandal (University of Colorado Boulder)
- Haroon B. Shalizi (University of Oxford)

Lecturer

Mehnoor Mehta (University of Cologne)

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Program & Application website:
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Topics

- Summary of Electrons in Solids
- Second Quantization in QM
- Feynman Path Integral in QM
- Renormalization Theory in QFT
- Summary: Breaking and Collective Phenomena

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Guest Speakers

- Elías Dopfer (UNAM)
- Robert Leifer (Oxford - U. Waterloo)
- Esteban Martín-Martínez (OCC - U. Waterloo)
- Robert Myers (Perimeter Institute)

Lecturer

José Roberto Gomes (OCC - U. Waterloo)

Teaching Assistants

Fabiola Galster (Stony Brook University)
Adam Tjallingii-Roelofs (OCC - U. Waterloo)

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Russell Blakeley (English University)

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Program & Application website:
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Deadline of the application: February 20, 2024

Topics

- Overview of linear algebra
- Basic topics on quantum information
- Quantum Algorithms
- Energy and source coding
- Entanglement
- Introductory quantum information

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Guest Speakers

- Raimundo Heppner (MPA)
- Susan Sierra (University of Edinburgh)
- Mitake Nakajima (Keio Institute (PHU))
- Christof Geil (UNAM)

Lecturer

Sebastian Schlegel Meja (Max Planck for Mathematics)

Teaching Assistants

Daniel Bermudez (University of Bonn)
Ronald Cortes Santamaría (SISSA)

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Daniel Galvin (Tsinghua University)

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Deadline of the application: February 20, 2024

Topics

- Summary of Lie algebras in physics
- Second quantization
- Feynman path integral
- Perturbation theory
- Symmetry breaking and collective phenomena

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Guest Speakers

- David Berenstein (UC Santa Barbara)
- Francesco Cachola (SISSA)
- Verónica Hubeny (UC Davis)
- Katallie M. Piquette (Washington University)
- Spenta Wadia (ICTS)

Lecturer

Robinson Mancilla (UC Santa Barbara)

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Sergio Aguilar Gutierrez (DU Leuven)

Organizer

Daniel Galvin (Tsinghua University)

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Program & Application website:
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Deadline of the application: February 20, 2024

Topics

- Motivation
- Basics of gravity
- AdS/CFT
- Large N limit and the AdS/CFT duality
- Holographic duality

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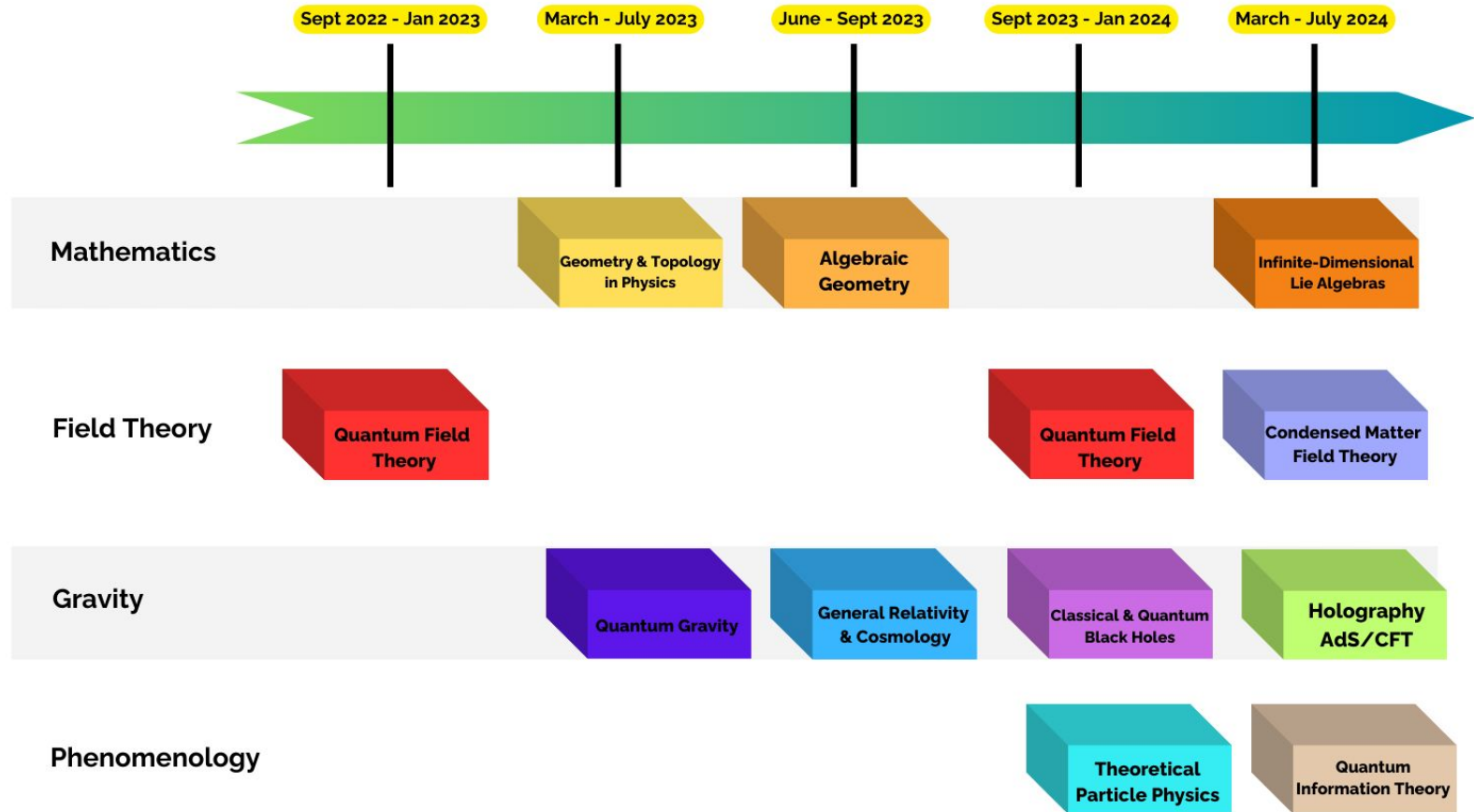
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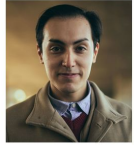
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Ruben Campos Delgado 🇮🇹

(University of Bonn, DE)
Contributions

- Lecturer for Back Holes mini-course 2023
- Lecturer for Quantum Gravity 2023
- TA for Quantum Field Theory 2022



Esteban Chalbaud 🇵🇹

LIP-Coimbra
(University of Coimbra, PT)
Contributions

- Lecturer for Theoretical Particle Physics 2023
- Co-organizer of Physics @Night Seminars
- Lecturer for General Relativity & Cosmology 2023



Francisco Villacis 🇺🇸

(Pure Mathematics University of
Waterloo, CA)
Contributions

- Lecturer for Algebraic Geometry 2023
- TA for Geometry and Topology in Physics 2023



Miroslava Mosso Rojas 🇮🇹

(Johannes Gutenberg University of Mainz,
DE)
Contributions

- TA for Geometry and Topology in Physics 2023



Sofia Di Gennaro 🇮🇹

(Yangzhou University, CN)
Contributions

- TA for Quantum Field Theory I 2023



Karen Macías Cárdenas 🇮🇹

(Institute of Theoretical Physics - IFT, SP)
Contributions

- TA for Theoretical Particle Physics 2023



Fabiola Cañete Leyva 🇮🇹

(Stony Brook University, USA)
Co-organizer of Physics @Night Seminars



Jiayi Cao 曹佳熙 (Jesse) 🇨🇳

(University of Cambridge, UK)
Co-organizer of Math & HEP Seminars



Johann Quenta Raygada 🇮🇹

(SISSA, IT)
Contributions

- TA for Quantum Field Theory I 2023



Kateryna Radchenko 🇵🇸

(Deutsches Elektronen-Synchrotron DESY,
DE)
Contributions

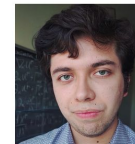
- TA for Theoretical Particle Physics 2023



Muldrow Etheredge 🇺🇸

(University of Massachusetts Amherst,
USA)
Contributions

- TA for Quantum Gravity 2023



Mauricio Gamonal San Martin 🇵🇷

(Pennsylvania State University, USA)
Contributions

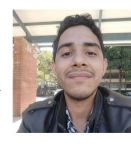
- TA for General Relativity & Cosmology 2023



Irvin Matínez 🇮🇹

(Carnegie Mellon University, USA)
Contributions

- TA for General Relativity & Cosmology 2023



Goosline Pereira 🇵🇷

(University Simón Bolívar, VE)

Big thanks to all of them!!

(More will join soon)

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