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### SUMMARY \_

I am a PhD student in mathematics currently living and studying in Rome. My main research interests are: representation theory, Lie algebras, algebraic geometry, vertex algebras, chiral and factorization algebras and the geometric Langlands program.

#### **EDUCATION**

BACHELOR IN MATHEMATICS UNIVERSITY OF PISA	03/10/2016-12/07/2019
• Final grade : 110 with honors / 110 – EQF level 6	
<ul> <li>Thesis: Holomorphic connections on Riemann surfaces</li> </ul>	
MASTER IN MATHEMATICS UNIVERSITY OF PISA • Final grade : 110 with honors/110 - EQF level 7 • Thesis: The center of the enveloping algebra of an affine Kac-Moody algebra	25/07/2019-24/09/2021
<b>"DIPLOMA DI LICENZA" IN MATHEMATICS</b> SCUOLA NORMALE SUPERIORE • Final grade : 110 with honors/110 - EQF level 7	03/10/2016-22/12/2022
PHD IN MATHEMATICS UNIVERSITY OF ROME 1 "LA SAPIENZA" • EQF level 8	01/11/2021 - Current

# CONFERENCES AND INVITED TALKS \_

#### CYCLE OF SEMINARS

UNIVERSITY OF PISA / ONLINE MEETINGS

• I held various lectures in the 2020/2021 Lie theory cycle of seminars, with a working group at the University of Pisa interested in vertex algebras. I have held 9 seminars about the description of the center of the enveloping algebra of an affine Kac-Moody algebra. This was also the subject of my master thesis, the main bibliographical reference is: E. Frenkel "Langlands Correspondence for Loop Groups".

# Invited talks: "A Feigin Frenkel theorem with *n* singularities" 08/09/2022 - 30/05/2023 - 06/06/2023

UNIVERSITY OF ROME 1 "LA SAPIENZA", UNIVERSITY OF BOLOGNA

• I held various seminars in different occasions where I explained the results of my article "A Feigin Frenkel theorem with *n* singularities". Respectively: at an international event on infinite dimensional Lie algebras held in Rome, during the conference "Interactions between Mathematics and Physics" in honor of Victor J. Kac and finally at the algebra and geometry seminar at the University of Bologna.

### INVITED TALK: "AFFINE ALGEBRAS WITH MULTIPLE SINGULARITIES AND DISTRIBUTIONS" 12/12/2023

INDAM WORKSHOP: VERTEX ALGEBRAS AND INFINITE DIMENSIONAL LIE ALGEBRAS

### INVITED TALK: "A TOUR IN THE REP. THEORY OF KAC-MOODY ALGEBRAS AT THE CRITICAL LEVEL" 19/12/2023

WINTER MEETING IN ALGEBRA AND GEOMETRY IN ROME 2023

#### **ORGANIZER OF THE Y.A.M.S. SEMINARS**

University of Rome 1 "La Sapienza"

• I am the co-organizer of a cycle of seminars held in University of Rome 1. This is dedicated to P.h.D. students and young researchers interested in a large number of topics in algebra.

2020/2021

April 2023/ongoing

• I extend the Feigin-Frenkel theorem, which describes the center of the enveloping algebra at the critical level, to a setting with *n* singularities, showing factorization compatibility with the original Feigin-Frenkel isomorphism.

# ACADEMIC VISITS .

### VISITING STUDENT AT MPIM-BONN

MAX PLANCK INSTITUE FOR MATHEMATICS / BONN / GERMANY

A FEIGIN-FRENKEL THEOREM WITH n SINGULARITIES

• I spent a month as a visiting student at the Max Planck Institute for Matemathics in Bonn under the supervision of Professor Dennis Gaitsgory.

# WORK EXPERIENCE \_\_

# **TEACHING ASSISTANT - MATHEMATICS 2**

LUISS UNIVERSITY / ROME / ITALY

• I tutored second year students of economy for a linear algebra course. My main duties were holding classes in which I explained how to solve exercises and exam preparation and correction.

### **CLASS TUTOR - ALGEBRA 1**

UNIVERSITY OF PISA / PISA / ITALY

• I tutored second year students of mathematics for the course "Algebra 1". I had two main activities. The first one was to do a weekly class in which I solved problems proposed by the professors and in which I discussed the various issues the students encountered during the week. My main focus was to suggest new ways to approach mathematical problems and how to formally write solutions. As my second duty I had to correct one among three exercises in two different exam papers.

# **CLASS TUTOR - GEOMETRY 1**

UNIVERSITY OF ROME 1 "LA SAPIENZA" / ROME / ITALY

• I tutored first year students in mathematics for the course "Geometry 1". The main task required was to keep a weekly class in which I solved the excercises that troubled the students the most.

#### INTERN

DARK SPHERE - GAME SHOP / LONDON / ENGLAND

• I spent a month in London with a summer exchange program. The first week I attended an English course while the other three weeks I was assigned to work in a game shop in the city. I did various activities, such as helping as a programming advisor and contacting other shops to organize events. This experience not only introduced me to the working environment but also greatly improved my confidence with English.

### HONORS AND AWARDS \_

#### **ITALIAN MATHEMATICAL OLYMPIADS**

• I participated in various competitions in the Mathematical Olympiad organized in Italy. During the academic year 2015/2016 I arrived first place both in my school competition and in the province level. The same year I won a bronze medal at the national Olympiads.

#### **ITALIAN PHYSICS OLYMPIADS**

• I participated in the Italian Physics Olympiads and won the silver medal at the national competition.

#### **GUSTAVO MEZZETTI AWARD - BEST MASTER THESIS IN ALGEBRA**

University of Padova / Italy

• I was awarded the first edition of the prize named after Gustavo Mezzetti, from the mathematics department of the University of Padova. The prize was for the best master thesis in Algebra in the academic year 2020/2021.

### LANGUAGE SKILLS

 ENGLISH
 Listening C1
 Reading C2
 Writing C1
 Spoken production C1
 Spoken interaction C1

 FRENCH
 Listening B1
 Reading B1
 Writing B1
 Spoken production B1
 Spoken interaction B1

 ITALIAN
 Mother tongue

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01/09/2023 - 30/09/2023

11/09/2023 - 02/12/2023

12/10/2020 - 19/02/2021

06/04/2022 - 10/06/2022

2016 2021

### **EXTRA**

• **Music:** I love to play and listen to music. I play the guitar and the saxophone. I played in various local shows both as a guitarist and a saxophonist.

• **Web developing:** I worked to completely redesign from scratch the website of a beer-related objects collector. Alongside the web design itself the process involved learning HTML,CSS3 as main programming languages as well as a little of JavaScript. collezionandobirra.com

• **Abroad experiences:** I participated in the Erasmus program and spent five months in Rennes in France. It was an enriching experience where I had the opportunity to learn how my subject is taught in a different country and to meet both local and international people.