

Edoardo Legnaro

EDUCATION AND WORK EXPERIENCE

Research Scholarship

1st FEB 2023 – 31st OCT 2023

University of Padova (UniPD)

Department of Mathematics “Tullio Levi Civita”

Subject: *Development of symbolic code for the implementation of second-order perturbation theory in closed form for the motions of a lunar satellite.*

PhD in Physics

1st FEB 2020 - 22nd AUG 2023

Aristotle University of Thessaloniki (AUTH)

Department of Physics

Thesis: *Orbital Dynamics and Diffusion at the Resonances in the Near-Earth Space Environment*

Advisors: George Voyatzis (AUTH), Maria Harsoula (RCAAM), Christos Efthymiopoulos (UniPD)

doi.org/10.26262/heal.auth.ir.350597

Marie Skłodowska-Curie Action (MSCA) STARDUST-R (ITN) - ESR5

Early-Stage Researcher

1st OCT 2019 - 31st NOV 2022

Academy of Athens

Research Center for Astronomy and Applied Mathematics (RCAAM)

Secondment

15th MAR 2022 - 29th APR 2022

Centre National d'Etudes Spatiales (CNES)

Toulouse, France

Secondment

1st FEB 2022 - 14th MAR 2022

Airbus Defense & Space

Toulouse, France

Secondment

21st SEP 2021- 18th DEC 2021

University of Rome Tor Vergata

Department of Mathematics

Rome, Italy

Master's Degree in Mathematics

1st OCT 2016 - 6th JUL 2018

University of Padova

Department of Mathematics "Tullio Levi Civita"

Thesis: *A Numerical Contribution to the Hierarchical Three-Body Problem*

Advisor: Gabriella Pinzari

hdl.handle.net/20.500.12608/27632

Bachelor's Degree in Mathematics

1st OCT 2016 - 22nd JUL 2018

University of Padova

Department of Mathematics "Tullio Levi Civita"

Thesis: *Perturbation Theory Approach to the Euler-Poinsot Rigid Body*

Advisor: Francesco Fassò

Classical Guitar Diploma

1st NOV 2006 - 22nd SEP 2016

Conservatorio Statale di Musica "C. Pollini"

Padova, Italy

PUBLICATIONS

Legnaro, E., Efthymiopoulos, C. & Harsoula, M. (2023).
Semi-analytical estimates for the chaotic diffusion in the Second Fundamental Model of Resonance. Application to Earth's navigation satellites.
Physica D: Nonlinear Phenomena, Volume 456, 133946, ISSN 0167-2789
doi.org/10.1016/j.physd.2023.133946

Legnaro, E., & Efthymiopoulos, C. (2023).
A detailed dynamical model for inclination-only dependent lunisolar resonances. Effect on the "eccentricity growth" mechanism.
Advances in Space Research, 72(7), 2460-2480.
doi.org/10.1016/j.asr.2022.07.057

Daquin, J., Legnaro, E., Gkolias, I., & Efthymiopoulos, C. (2022).
A deep dive into the $2g+h$ resonance: separatrices, manifolds and phase space structure of navigation satellites.
Celestial Mechanics and Dynamical Astronomy, 134(1), 6.
doi.org/10.1007/s10569-021-10060-6

CONFERENCES TALKS

Complex Planetary Systems II – Kavli-IAU Symposium 382

University of Namur

Talk Title: *MEO Secular Resonances: Phase Space, Eccentricity Growth and Diffusion of Navigation Satellites*

3-7 JUL 2023

Namur, Belgium

STARCON2

ESA European Space Research and Technology Centre (ESTEC)

Talk Title: *Secular Lunisolar Resonances in the MEO Region and the Eccentricity Growth Phenomenon*

7-11 NOV 2022

Noordwijk, The Netherlands

CELMEC VII

University of Rome Tor Vergata

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

5-9 SEP 2022

Rome, Italy

KEPASSA 2022

Key topics in orbit propagation applied to Space Situational Awareness

University of La Rioja

Talk Title: *A detailed dynamical model for inclination-only dependent lunisolar resonances. Effects on the eccentricity growth mechanism.*

22-24 JUN 2022

Logroño, Spain

I-CELMECH

New Frontiers of Celestial Mechanics: Theory and Applications

University of Pisa

Talk Title: *A detailed dynamical model for inclination-only dependent lunisolar resonances. Effects on the eccentricity growth mechanism.*

14-16 JUN 2022

Pisa, Italy

IAU Symposium 364

Multi-scale (time and mass) dynamics of space objects

University Alexandru Ioan Cuza of Iași

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

18-22 OCT 2021

Iași, Romania

Stardust-R Global Virtual Workshop II (GVW-II)

Space Traffic Management and Resilient Space Environment

German Aerospace Center (DLR)

German Research Center for Artificial Intelligence (DFKI)

University of Strathclyde

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

13-17 SEP 2021

SEMINARS

CNES

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

25th APR 2022

Toulouse, France

Airbus Defense & Space

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

19th APR 2022

Toulouse, France

Academy of Athens

Research Center for Astronomy and Applied Mathematics (RCAAM)

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

30th NOV 2021

Athens, Greece

Aristotle University of Thessaloniki

Department of Physics

Talk Title: *Analytic Theory for Secular Lunisolar Resonances*

2nd NOV 2021

Thessaloniki, Greece

TRAINING SCHOOLS

New Frontiers of Celestial Mechanics: Theory and Applications

University of Padova, Department of Mathematics "Tullio Levi Civita "

15-17 FEB 2023

Iași, Romania

CELTA ASI Summer School

University of Highlands & Islands (UHI)

15-27 AUG 2022

Inverness Scotland,

Sabhal Mòr Ostaig, Skye, Scotland

H2020 in Hamiltonian Dynamics

Centro Culturale Don Orione

25-29 JUL 2022

Venice, Italy

Stardust-R Training School III

Space Environment Stability and Resilience

University Alexandru Ioan Cuza

15-19 MAR 2021

Iași, Romania

Stardust-R Local Training Workshop II (LTW-II)

Delft University of Technology

Hyperion Technologies

21-23 FEB 2022

Delft, Netherlands

Stardust-R Global Virtual Workshop I

Exploration, Exploitation of Minor Bodies of the Solar System

University of Pisa

7-10 SEP 2020

Pisa, Italy

Stardust-R Local Training Workshop I

Technical University of Madrid

Deimos Space

18-21 MAY 2020

Madrid, Spain

Stardust-R Training School II

Politecnico di Milano

10-13 FEB 2020

Milan, Italy

I-CELMECH Training School

University of Milano

3-7 FEB 2020

Milan, Italy

STARDUST-R Opening Training School

University of Strathclyde

2-7 DEC 2019

Glasgow, UK

SOFTWARE

Programming Languages: Python, C++, MATLAB, Wolfram Mathematica, Julia

LANGUAGES

Foreign Language	Understanding	Speaking	Writing
English	C1	C1	C1
Spanish	B1	B1	B1
French	A2	A2	A2
Greek	A1	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

OTHER

Co-founder of **Lilium SoundArt APS**
25 MAY 2020, C.F. 92298680288
Registered at RUNTS with D.LGS. of 16/05/2022 N. 168