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Georgios Dimitriadis

Summary of Research Interests

I work on Transient Astronomy, with a specific interest in:

- Type Ia supernovae explosion physics and progenitor systems
- Optical and Near Infrared spectroscopy
- Weird thermonuclear transient populations
- Transient surveys design and operations

Work Experience

2025 – Present **Marie Skłodowska-Curie Fellow**, *Physics Department, Observational Astrophysics, Lancaster University*, Lancaster, United Kingdom

2024 – 2025 **Senior Research Associate in Supernova Cosmology**, *Physics Department, Observational Astrophysics, Lancaster University*, Lancaster, United Kingdom

2021 – 2024 **SUPERSTARS Postdoctoral Research Fellow**, *School of Physics, Department of Astrophysics and Space Physics, Trinity College Dublin*, Dublin, Ireland

2017 – 2021 **Postdoctoral Research Scholar**, *Department of Astronomy and Astrophysics, University of California, Santa Cruz*, Santa Cruz, CA, USA

Education

2013 – 2017 **PhD in Astronomy**, *University of Southampton*, Southampton, United Kingdom
Thesis: Observational Constraints on the Progenitors of Type Ia Supernovae, supervised by Prof. Mark Sullivan.

2011 – 2013 **MSc in Physics and Astronomy**, *Anton Pannekoek Institute for Astronomy*, Amsterdam, The Netherlands
Dissertation: Early X-ray emission from Type Ia supernovae originating from symbiotic progenitors or recurrent novae, supervised by Dr. Jacco Vink.

2004 – 2011 **Bachelor in Physics**, *Aristotle University*, Thessaloniki, Greece
Specialisation: Computational Physics; Dissertation: Computational Studies on Neutron Star structures, supervised by Dr. Charalambos Moustakidis.

Fellowships, Grants and Awards

June 2025 – Present **Marie Skłodowska-Curie European Postdoctoral Fellowship**, *Physics Department, Observational Astrophysics, Lancaster University, Lancaster, UK*, HORIZON-MSCA-2024-PF-01-01, Value: €260,340
SN-DIVE: Mapping the diversity of Type Ia supernovae explosions

Collaborations

2025 – Present **LS4**, *La Silla Schmidt Southern Survey*, Northwestern University, Lawrence Berkeley National Laboratory, University of California–Berkeley, Lancaster University, IN2P3, Trinity College Dublin, University of Southampton and others

2024 – Present **4MOST**, *Time-Domain Extragalactic Survey (TiDES)*, 4MOST Consortium, Trinity College Dublin, University of Southampton, Lancaster University and others

2021 – Present **ZTF**, *The Zwicky Transient Facility*, Caltech, Weizmann Institute of Science, IN2P3, Trinity College Dublin and others

2017 – Present **YSE**, *The Young Supernovae Experiment*, University of California Santa Cruz, DARK Cosmology Centre, University of Illinois and others

2017 – Present **KEGS**, *Kepler Extra-Galactic Survey*, Space Telescope Science Institute and others

2017 – Present **1M2H**, *One-Meter Two-Hemisphere*, University of California Santa Cruz and others

2013 – Present **(e)PESSTO(+)**, *Public ESO Spectroscopic Survey of Transient Objects*, ESO

Conferences – Workshops – Academic Presentations

November 2025 **IAASARS Seminar**, *National Observatory of Athens*, Athens, Greece
INVITED TALK: The Next Generation of Time-Domain Surveys: Type Ia Supernovae from ZTF to LSST and Beyond

June 2025 **17th Hellenic Astronomical Conference**, *Conference & Cultural Center of the University of Patras*, Patras, Greece
CONTRIBUTED TALK: The diversity in the thermonuclear SN population as observed from ZTF

April 2025 **An Extraordinary Journey Into The Transient Sky**, *Palazzo della Salute*, Padova, Italy
CONTRIBUTED TALK: The diversity in the thermonuclear SN population as observed from ZTF

November 2024 **Third meeting on Progress in Astrophysics with Type Ia Supernovae (PATIAS-3)**, *The Royal Astronomical Society, Burlington House*, London, United Kingdom
CONTRIBUTED TALK: The diversity in the thermonuclear SN population as observed from ZTF

April 2024 **Armagh Observatory Seminar**, *Armagh Observatory*, Armagh, United Kingdom
INVITED TALK: The increasing diversity in the thermonuclear supernovae population

December 2023 **IAASARS Seminar**, *National Observatory of Athens*, Athens, Greece
INVITED TALK: The increasing diversity in the thermonuclear supernovae population

July 2023 **Royal Astronomical Society National Astronomy Meeting 2023**, *Cardiff University*, Cardiff, United Kingdom
SESSION ORGANISER: Explosive and high energy transients: A new era of discovery

June 2023 **16$^{\text{th}}$ Hellenic Astronomical Conference**, *National and Kapodistrian University of Athens*, Athens, Greece
CONTRIBUTED TALK: The mass puzzle of "Super-Chandrasekhar" SNe Ia

June 2023 **TESS Mission Update Meeting 2023**, *Massachusetts Institute of Technology*, Cambridge, MA, USA
CONTRIBUTED TALK: SN 2021zny: A Super-Chandra SN Ia observed by TESS

September 2019 **The extragalactic explosive Universe: the new era of transient surveys and data-driven discovery**, *ESO-HQ*, Garching near Munich, Germany
CONTRIBUTED TALK: Insights on the progenitor system of SNe Ia from the Kepler-K2 SN Ia sample

June 2019 **The Supernova Continuum: Filling in the Transient Gaps**, *European Week of Astronomy and Space Science 2019*, Lyon, France
INVITED TALK: The increasing diversity in the thermonuclear SN population

March 2019 **Extragalactic Astronomy with Kepler**, *Kepler and K2 Science Conference V*, Glendale, Los Angeles, CA, USA
CONTRIBUTED TALK: Nebular phase studies of SN 2018oh

January 2019 **First Results from the Kepler/K2 Supernova Experiment**, *233rd Meeting of the American Astronomical Society*, Seattle, WA, USA
CONTRIBUTED TALK: K2 Observations of SN 2018oh Reveal a Two-Component Rising Light Curve for a Type Ia Supernova

August 2016 **The Supernovae Through the Ages Conference**, *Millennium Institute of Astrophysics*, Easter Island, Chile
POSTER: The Late-time light curve of SN 2011fe

February 2015 **Colloquium**, *Aristotle University*, Thessalloniki, Greece
INVITED TALK: The progenitor problem of Type Ia Supernovae

Observing Experience

April 2021 – Present **SPRAT/IO:O**, *Liverpool Telescope*, Observatorio del Roque de los Muchachos

September 2018 – Present **GMOS**, *Gemini Telescope*, Gemini Observatory

September 2017 – July 2023 **Goodman**, *Southern Astrophysical Research Telescope (SOAR)*, Cerro Tololo Inter-American Observatory (CTIO)

September 2017 – April 2021 **LRIS/MOSFIRE**, *Keck Telescopes*, W. M. Keck Observatory

September 2017 – Present **KAST**, *Shane Telescope*, Lick Observatory

November 2014 – Present **EFOSC2/SOFI**, *New Technology Telescope*, La Silla Observatory

Observing Time Awarded

I have been awarded a total of 176.5 hours of observing time as a Principal Investigator and several more as a co- investigator, on a variety of both ground- and space-based telescopes/instruments, including the Liverpool Telescope (302.4h from 2020 till today), the 3-m Shane Telescope (206 nights from 2018 till today), the 8.1-m Gemini Telescopes (17 approved programs from 2018 till today), the Keck Telescopes (Foundation Supernova Survey), the Very Large Telescope (24.3h in service and RRM/ToO modes) and the Hubble Space Telescope (215 orbits from 2018 till today). I also have significant observing experience in observatories in Chile and USA (36 and 80 nights respectively).

As Principal Investigator

July 2025 – present **SPRAT/IO:O**, *Liverpool Telescope*, Observatorio del Roque de los Muchachos, 15h
Early spectroscopic classifications of LS4 transients with the LT

July 2025 – present **SPRAT/IO:O**, *Liverpool Telescope*, Observatorio del Roque de los Muchachos, 27h
Observing white dwarf mergers with the LT

October 2023 – September 2024 **XSHOOTER**, *VLT/UT3*, Cerro Paranal Observatory, ESO, 18.2h
Searching for Hydrogen and Helium in late-time 'transitional' SNe Ia spectra

January 2022 – September 2024 **SPRAT/IO:O**, *Liverpool Telescope*, Observatorio del Roque de los Muchachos, 56.3h
"Super-Chandrasekhar" and SNe Ia-CSM observations with the LT

January 2021 – July 2023 **Goodman**, *SOAR*, CTIO, 60h per semester
Young Supernova Experiment (long-term)

Professional Skills

Long Slit Spectroscopy

- NTT/EFOSC2 (optical)
- NTT/SOFI (NIR)
- Shane/KAST (optical)
- Keck/LRIS (optical)
- Keck/MOSFIRE (NIR)
- LCO/FLOYDS (optical)
- SOAR/Goodman (optical)
- Gemini/GMOS (optical)
- LT/SPRAT (optical)
- VLT/XSHOOTER (optical/NIR)
- GTC/OSIRIS (optical)

Multi-Object Slit Spectroscopy

- SOAR/Goodman (optical)

Photometry

- PTF (optical)
- EFOSC2 (optical)
- SOFI (NIR)
- LCOGT (optical)
- HST (optical,NIR)
- IO:O (optical)

Professional Service

Member of the Astronomical Society of Ireland, the Hellenic Astronomical Society and the European Astronomical Society.

2023 – 2024 **Seminar Organiser**, *TCD Astrophysics Department Talks*, Trinity College Dublin

2022 – Present **Co-lead**, *ZTF Cosmology with SN Ia, gravitational lensing and SN Ia physics Working Group (101 members)*, ZTF
I hold builder status on studies of the WG. I am responsible in organising and moderating the weekly meetings of the WG.

2019 – 2021 **Seminar Organiser**, *Friday Lunch time Astrophysics Seminar (FLASH)*, UC Santa Cruz

2016 – Present **Referee**, *Astrophysical Journal, Astrophysical Journal Letters, Monthly Notices of the Royal Astronomical Society, Astronomy & Astrophysics*

Teaching - Mentoring

October 2025 – Present **Supervisor**, *Physics Department, Observational Astrophysics, Lancaster University*, Lancaster, United Kingdom
PHYS450: Year 4 Physics Project – I am supervising an undergrad student (Scott Bond) for his MPhys research project.

January 2022 – April 2024 **Instructor**, *School of Physics, Department of Astrophysics and Space Physics, Trinity College Dublin*, Dublin, Ireland
Introduction to Physics, Computational Lab

October 2021 – April 2024 **Supervisor**, *School of Physics, Department of Astrophysics and Space Physics, Trinity College Dublin*, Dublin, Ireland
Undergraduate research projects – I have supervised 4 undergrad students: Ciarán Furey obtained a MSc degree from University of Amsterdam, Anton Pannekoek Institute for Astronomy, Zoë McGrath obtained a MSc degree from University of Amsterdam, Anton Pannekoek Institute for Astronomy and currently doing a PhD in Astrophysics at Liverpool John Moores University, Natasha Payet obtained a MSc in Astronomy at Universitè Toulouse III – Paul Sabatier, and Grellan Lambert is currently doing a MSc in Planetary Geosciences with a scholarship at the GeoPlaNet Erasmus Mundus Joint Master programme.

September 2017 – March 2021 **Supervisor/Mentor**, *Department of Astronomy and Astrophysics, University of California, Santa Cruz*, Santa Cruz, USA
I have supervised one undergrad student (Wynn Jacobson-Galán) who is currently a NASA Hubble Postdoctoral Fellow in the California Institute of Technology (Caltech) and mentored a grad student (Matthew Siebert) who is currently a STScI fellow at the Space Telescope Science Institute, Baltimore, Maryland, USA. I have given 3 seminars on introductory transient astrophysics topics for the Transient Lunch meeting in UC Santa Cruz.

September 2013 – September 2014 **Mayflower Studentship**, *University of Southampton*, Southampton, United Kingdom
During the first year of my PhD I have been funded by the Mayflower Scholarship. The scholarship required to spend 25% of my time on teaching assistant duties. My responsibilities included:
- **Demonstrating**: Wave Physics and Classical Mechanics (second year modules). I have been an assistant on the module's problems class.
- **Tutoring**: As a Mayflower student, I was the link between the students, the other demonstrators and the lecturer, for solving possible problems.
- **Marking**: Wave Physics and Classical Mechanics (second year modules). I was the marker of the first part of the final year exam.

Outreach – Public Engagement

2017 – 2019 **Giving Day 2017/2018/2019**, *UC Santa Cruz*, Santa Cruz, USA
I participated in outreach events to raise money for funding undergraduate students to participate in photometric observations of gravitational waves electromagnetic counterpart candidatess.

March 2016 **Outreach**, *4th Elementary School*, Xanthi, Greece
TALK: I gave a public engagement talk to 6-12 year-old students.

November 2015 **2015 STAG public lecture by Physics Nobel Laureate Brian Schmidt**, *University of Southampton*, Southampton, United Kingdom
POSTER: 'Explosions in the Sky: Supernovae Type Ia'

Languages

Native Greek
Fluent English

Computer Skills

Advanced PYTHON, IDL, IRAF/PYRAF, Github, LaTeX
Intermediate FORTRAN

Publications

I have written or contributed to 93 refereed publications, including 7 first-author publications for which my PhD supervisor was co-author in only one. I have also contributed to and am a co-author on 4 Nature publications. My total number of citations are 9,391 (including 3,863 from the first GW-EM kilonova detection paper). My h-index is 34, based on the Astrophysics Data System (ADS) statistics. My full publication list can be found in this link.

First author

[1] **ZTF SN Ia DR2: The diversity and relative rates of the thermonuclear SN population**, *Dimitriadis, G. et al. (30 other coauthors)*, Astronomy & Astrophysics, Volume 694, id.A10, 19 pp., February 2025, 26 citations.

– Performed a large-scale statistical study of the ZTF SNe Ia DR2 sample, presenting the SNe's spectroscopic classification alongside their photometric, host galaxy properties and observed fractions of their subclasses.

[2] **SN 2021zny: an early flux excess combined with late-time oxygen emission suggests a double white dwarf merger event**, *Dimitriadis, G. et al. (30 other coauthors)*, MNRAS, 521(1):1162–1183, May 2023, 33 citations.

– Provided overwhelming evidence that the 03fg-like SN 2021zny originated from a double WD merger event from observations hours (the detection of a short-time blue flash) and months after explosion (the detection of oxygen emission).

[3] **A Carbon/Oxygen-dominated Atmosphere Days after Explosion for the "Super-Chandrasekhar" Type Ia SN 2020esm**, *Dimitriadis, G. et al. (20 other coauthors)*, APJ, 927(1):78, March 2022, 30 citations.

– Showed that the "Super-Chandrasekhar" (03fg-like) SN 2020esm had a nearly pure carbon/oxygen atmosphere for the first days after explosion, an observation in accordance with the merger of two carbon/oxygen WDs.

[4] **Nebular Spectroscopy of Kepler's Brightest Supernova**, *Dimitriadis, G. et al. (11 other coauthors)*, APJ, 870:L14, January 2019, 32 citations.

– Estimated strict upper limits on the amount of hydrogen and helium stripped by the explosion from a companion star of SN 2018oh, an event with a prominent early flux excess hypothesized to originate from a companion.

[5] **K2 Observations of SN 2018oh Reveal a Two-component Rising Light Curve for a Type Ia Supernova**, *Dimitriadis, G. et al. (150 other coauthors)*, APJ, 870:L1, January 2019, 114 citations.

– Presented an exquisite 30min cadence light curve with the earliest detection (3.6h hours after explosion) of a blue flux excess component, predicted by some SN Ia progenitor systems.

[6] **The late-time light curve of the Type Ia supernova SN 2011fe**, *Dimitriadis, G. et al. (12 other coauthors)*, MNRAS, 468:3798–3812, July 2017, 48 citations.

– Analysed extremely late-time data of the most well-studied SNe Ia, 2011fe, that proved the presence of radioactive ^{57}Ni, with implications on its progenitor system.

[7] **Early X-ray emission from Type Ia supernovae originating from symbiotic progenitors or recurrent novae**, *Dimitriadis, G. et al. (2 other coauthors)*, MNRAS, 443:1370–1380, September 2014, 14 citations.

– (Master's Dissertation) Justified the absence of X-ray emission in SNe Ia employing numerical hydrodynamical simulations of recurrent novae explosions before the SN terminal explosion and the interaction of the SN with the surrounding medium.