

# KITP Conference: White Dwarfs from Physics to Astrophysics

(Nov 14-17, 2022)

Coordinators: Ken Shen and Alejandra Romero

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## Monday, Nov 14, 2022

8:50am Lars Bildsten (KITP)

[Welcome\[Video\]\[CC\]](#)

9:00am Maurizio Salaris (LJMU)

[Stellar evolution and its impacts on the properties of white dwarfs \[REMOTE\]\[Slides\]\[Video\]\[CC\]](#)

9:30am Evan Bauer (Harvard-Smithsonian CfA)

[White Dwarf Sedimentation and Phase Separation: Status of Stellar Modeling for Cooling Timescales\[Slides\]\[Video\]\[CC\]](#)

10:00am Simon Blouin (U Victoria)

[Fractionation processes in crystallizing white dwarfs\[Slides\]\[Video\]\[CC\]](#)

10:30am

### Morning Break

11:00am Paula Izquierdo (U Warwick)

[Systematic uncertainties in the characterisation of He-dominated metal-polluted white dwarfs \[REMOTE\]\[Slides\]\[Video\]\[CC\]](#)

11:20am Matthew Green (Tel Aviv U)

[Eclipse Timing of AM CVn Binary Stars \[REMOTE\]\[Video\]\[CC\]](#)

11:40am Keaton Bell (Queens College)

[The Disappearing White Dwarf Survey\[Slides\]\[Video\]\[CC\]](#)

12:00pm Jan Van Roestel (U Amsterdam)

[Studying the population of compact white dwarf binaries using eclipses\[Video\]\[CC\]](#)

12:20pm Paul Ripoche (UBC)

[The white-dwarf population from the CFHT Large Area U-band Deep Survey\[Slides\]](#)

12:40pm

### Lunch Break

2:10pm Maxim Lyutikov (Purdue)

[Transients following WD mergers\[Slides\]\[Video\]\[CC\]](#)

2:30pm Muk Kilic (Oklahoma)

[The Merger Fraction of Ultramassive White Dwarfs\[Video\]\[CC\]](#)

2:50pm Ilaria Caiazzo (Caltech)

[Merger remnants, double-faced stars and other curiosities: massive, rapidly rotating white dwarfs in ZTF\[Slides\]\[Video\]\[CC\]](#)

3:10pm Ashley Ruitter (UNSW Canberra)

[Mergers of white dwarfs as failed Type Ia supernovae\[Slides\]\[Video\]\[CC\]](#)

3:30pm

### Afternoon Break

4:00pm Dennis Crake (ROE)

[Machine Learning to Constrain the Initial-Final Mass Relation of White Dwarf Stars\[Slides\]\[Video\]\[CC\]](#)

4:20pm Teruca Belmonte (U Valladolid)

[Experimental atomic physics and its application to white dwarf atmospheres: capabilities and challenges\[Video\]\[CC\]](#)

4:50pm Barbara Castanheira (Baylor)

[White Dwarfs in the HETDEX survey\[Slides\]\[Video\]\[CC\]](#)

5:10pm Snehalata Sahu (U Warwick)

[HST/COS Ultra-Violet high-resolution spectroscopic survey of DA White Dwarfs\[Slides\]\[Video\]\[CC\]](#)

5:30pm

## SHUTTLE TO BWSCI

**Tuesday, Nov 15, 2022**

9:00am JJ Hermes (BU)

[Stellar Autopsies from White Dwarf Pulsations](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

9:30am Paula Szkody (UW)

[Puzzles and Promise of Accreting Pulsating White Dwarfs](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

9:50am Morgan Chidester (Arizona State)

[On Trapped Modes In Variable White Dwarfs As Probes Of the  \$^{12}\text{C}\(\alpha, \gamma\)^{16}\text{O}\$  Reaction Rate](#)[\[Video\]](#)[\[CC\]](#)

10:10am Surajit Kalita (U Cape Town)

[Continuous gravitational wave observations to understand nature of compact objects](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

10:30am

### Morning Break

11:10am Agnes Kim (PSU Scranton)

[Constraints on mass and effective temperature for pulsating white dwarfs from parallaxes](#)[\[REMOTE\]](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

11:30am Sivan Ginzburg (Hebrew U)

[Crystallization dynamos: slow convection and fast rotation](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

11:50am Stefano Bagnulo (Armagh Observatory)

[The origin of magnetism in isolated white dwarfs: Observational constraints](#)[\[Video\]](#)[\[CC\]](#)

12:10pm Claudia Rodrigues (INPE)

[Degeneracy of the white-mass estimation in magnetic cataclysmic variables](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

12:30pm

### Lunch Break

2:00pm Diogo Belloni (UTFSM)

[Do we fully understand how Cataclysmic Variables form and evolve?](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

2:30pm Kareem El Badry (Harvard-Smithsonian CfA)

[Magnetic braking in binaries containing white dwarfs](#)[\[Video\]](#)[\[CC\]](#)

2:50pm Anna Pala (European Space Agency)

[A spectroscopic survey of the 300 pc sample of Cataclysmic Variables](#)[\[Video\]](#)[\[CC\]](#)

3:10pm Monica Zorotovic (U Valparaíso)

[Close white dwarfs with unevolved companions: constraints on the common envelope phase](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

3:30pm

### Afternoon Break

4:00pm Arnab Sarkar (Cambridge)

[A unified model for the evolution of cataclysmic variables](#)[\[REMOTE\]](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

4:20pm Odette Toloza Castillo (UTFSM)

[Evolved cataclysmic variables and C/N ratio as a constraint on the evolution as seen as example in HS0218+3229](#)[\[Video\]](#)[\[CC\]](#)

4:50pm Zhuofu Chester Li (U Washington)

[A Systematic Search for Short Orbital Period Cataclysmic Variables Using the Zwicky Transient Facility](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

5:10pm Peter Scherbak (Caltech)

[White dwarf binaries suggest a common envelope efficiency  \$\hat{\tau} \approx 1/3\$](#) [\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

5:30pm RECEPTION

6:00pm SPECIAL EVENTS DINNER

8:00pm SHUTTLE TO BWSCI

**Wednesday, Nov 16, 2022**

9:00am Ingrid Pelisoli (U Warwick)

[Towards a volume-limited all-sky sample of extremely low-mass white dwarfs\[Video\]\[CC\]](#)

9:30am Ranjan Kumar (NIT Rourkela)

[Detection of extreme low mass white dwarfs in globular clusters M3 and M13\[Slides\]\[Video\]\[CC\]](#)

9:50am Warren Brown (Harvard-Smithsonian CfA)

[A Complete Sample of Low Mass White Dwarf Binaries in the SDSS Footprint\[Slides\]\[Video\]\[CC\]](#)

10:10am Ruediger Pakmor (MPA)

[Type Ia Supernova Progenitors\[Slides\]\[Video\]\[CC\]](#)

10:40am

**Morning Break**

11:10am Dan Kosakowski (UMass Dartmouth)

[Titanium-Powered Type Ia Supernovae and Remnants: Differentiating Between Type Ia Supernovae Progenitors with Ti44 \[REMOTE\]\[Slides\]\[Video\]\[CC\]](#)

11:30am Samuel Boos (Alabama)

[Multidimensional Hydrodynamical Simulations and Radiative Transfer Calculations of Thin Shell Double Detonations\[Slides\]\[Video\]\[CC\]](#)

11:50am Abigail Polin (Caltech & Carnegie Observatories)

[The Explosive Deaths of White Dwarfs\[Video\]\[CC\]](#)

12:10pm Abinaya Rajamuthukumar (Max Planck institute for Astrophysics) Type Ia Supernova rates and evolutionary pathways: Effect of tertiary star in the formation of Single and Double degenerate SNe Ia[Embargoed]

12:30pm

**Lunch Break**

2:00pm Kate Maguire (Trinity Dublin)

[Observations of thermonuclear supernovae \[REMOTE\]\[Video\]\[CC\]](#)

2:30pm Or Graur (Portsmouth)

[Rage Against the Dying of the Light: Old Supernovae Teach Us New Tricks \[REMOTE\]\[Video\]\[CC\]](#)

2:50pm Yuan Qi Ni (U Toronto)

[Moment of Birth: How infant-phase signals from SN2018aaz inform Type Ia SN origins\[Video\]\[CC\]](#)

3:10pm Viraj Karambelkar (Caltech)

[Faintest of them all: SN 2021fzg and the population of low luminosity Type Ia supernovae\[Video\]\[CC\]](#)

3:30pm

**Afternoon Break**

4:00pm Jenő Sokoloski (LSSTC & Columbia U)

[New appreciation of the role of shocks in nova eruptions \[REMOTE\]\[Video\]\[CC\]](#)

4:30pm Sumit Sarbadhikary (Ohio State U)

[Radio observations of old thermonuclear supernovae as a novel probe of progenitor models\[Video\]\[CC\]](#)

4:50pm Ivo Seitenzahl (UNSW Canberra)

[From the supernova remnant back to the white dwarf\[Video\]\[CC\]](#)

5:10pm Wynn Jacobson Galán (Berkeley)

[The Circumstellar Environments of Calcium-rich Transients](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

5:30pm

**RECEPTION**

6:00pm

**SPECIAL EVENTS DINNER**

8:00pm

**SHUTTLE TO BWSCI**

**Thursday, Nov 17, 2022**

9:00am Roberto Raddi (Barcelona Tech)

[Surviving Runaway Stellar Remnants from Thermonuclear Supernovae](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

9:30am Siyi Xu (Gemini North)

[Observations of Polluted White Dwarfs](#)[\[Video\]](#)[\[CC\]](#)

10:00am Marc Brouwers (Cambridge)

[A road-map to white dwarf pollution](#)[\[Video\]](#)[\[CC\]](#)

10:30am

**Morning Break**

11:00am David Wilson (U Colorado Boulder)

[Antiphase extreme ultraviolet and optical variability at the white dwarf GD 394](#) [\[REMOTE\]](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

11:20am Na'ama Hallakoun (Weizmann Inst.)

[Characterizing the Galactic double white dwarf population](#)[\[Video\]](#)[\[CC\]](#)

11:40am Lou Baya Ould Rouis (BU)

[With or Without You: Metal Pollution around Massive White Dwarfs as a Tool to Constrain Planetary Occurrence Rates](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

12:00pm Christopher O'Connor (Cornell)

[Dynamics of white-dwarf planetary systems: origins of short-period companions and metal pollution](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

12:20pm

**Lunch Break**

1:50pm Nicola Gentile Fusillo (ESO)

[The strange case of WDJ1328-1450: the white dwarf with a double debris disc](#)[\[Video\]](#)[\[CC\]](#)

2:10pm Joseph Guidry (BU)

[Characterizing the Orbital Periods of Transiting Planetary Debris around White Dwarfs](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

2:30pm Harvey Richer (UBC)

[JWST Search for Debris Disks Around White Dwarfs in the Globular Cluster 47 Tucanae](#)[\[Video\]](#)[\[CC\]](#)

2:50pm Sihao Cheng (JHU / IAS)

[Planet candidates around massive white dwarfs](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

3:10pm Valeriya Korol (U Birmingham)

[Double white dwarf separation distribution: astrometric evidence from Gaia for a gap at 1 au](#)[\[Video\]](#)[\[CC\]](#)

3:30pm

**Afternoon Break**

4:00pm Stella Stopkowicz (Saarland U)

[Prediction and assignment of spectra from strongly magnetized White Dwarf stars using high-accuracy quantum chemistry](#)[\[Video\]](#)[\[CC\]](#)

4:30pm Akash Vani (U Heidelberg)

[Properties of white dwarfs in a semi-analytic Milky Way model based on Gaia DR3](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

4:50pm Hang Yu (KITP)

[Tides in compact white dwarf binaries](#)[\[Slides\]](#)[\[Video\]](#)[\[CC\]](#)

5:10pm **CONFERENCE END SHUTTLE TO BWSCI \*Also available to SB Airport and SB Airbus, Goleta location. (See Registration Desk BEFORE THURSDAY to sign up.)**