



September 10th - 14th

Dear Colleague,

We are pleased to announce that the registration for Hydrogen Deficient Stars 2018 is now open. In this announcement you will find important information about the registration process, financial support, travel and accommodation. Please visit the conference webpage for further information. On behalf of the both the Scientific and Local Organizing Committees, I look forward to welcoming you to Armagh in September.

Yours faithfully,
Simon Jeffery

Website

<https://hdef4.github.io>

Deadlines

Abstract submission: Talks - June 11th.

Requests for on-site accommodation and/or financial assistance: June 11th.

Early-bird registration: July 16th.

Abstract submission: Posters - August 9th.

Hotel Reservation (Armagh City Hotel): August 9th.

Registration

Please fill out the registration form and abstract submission for a talk or poster: <https://hdef4.github.io/registration.html>
Payment instructions are included in the registration form and on the conference website.

Oral contributions will be selected by the Scientific Organizing Committee shortly after the submission deadline (June 11th). Talks that cannot be scheduled will be accepted as posters.

The conference fee is £200 for early registration (by July 16th), and £250 for registration thereafter. The registration fee includes lunches and coffee breaks, the opening reception, the conference excursion and the conference dinner.

Subject to the organizers obtaining sufficient external funding, postgraduate students will be eligible for a refund of 50% of their fee upon arrival and registration at the conference. Funds for limited financial assistance to other categories are being sought. Enquiries and circumstances should be sent to Aileen McKee (ambn@arm.ac.uk) before June 11th. Further information will be provided on the website by May 1st.

A registration fee of £100 will be charged upon arrival for accompanying persons. This will include the opening reception, the conference excursion and the conference dinner.

Venue

The conference will be held at Armagh Observatory and Planetarium in the cathedral city of Armagh in Northern Ireland. 2018 is the 50th anniversary of the opening of the planetarium, of which the late Sir Patrick Moore was first director, and which remains the longest serving public planetarium in the UK and Ireland. Armagh has enormous historical significance as the ancient seat of the kings of Ulster, the ecclesiastical capital of Ireland, and a major centre of the Georgian renaissance in Ireland. For further information about local places of interest, visit:

<https://visitarmagh.com/places-to-explore/>

<https://discovernorthernireland.com/about-northern-ireland/counties/co-armagh/county-armagh/>

Accommodation

A block of 50 rooms has been reserved for the nights of September 9th - 13th (Arrive Sunday - depart Friday) at the [Armagh City Hotel](#) at the following reduced rates:

£77.00 double room for single occupancy

£90.00 double room for double occupancy

£120.00 triple occupancy

These rates are inclusive of full breakfast, free wifi, use of the leisure club, complimentary car parking, and VAT. To book a room, delegates must contact the hotel's Central Reservations office on (+44)28 3751 8888 and choose option 1, or email res@mooneyhotelgroup.com. A credit/debit card number will be required to guarantee the booking. "Scientific Conference" MUST be quoted at the time to qualify for the discounted rate. 10 rooms have been reserved for the night of September 14th (Friday). Reservations must be made by August 9th. Delegates wishing to stay additional nights should book early to avoid disappointment.

A list of other accommodation options can be found [here](#). Properties within a 5 mile radius of Armagh are highlighted. Prices and availability at these locations cannot be guaranteed. A very limited number of low-cost rooms is available on the Observatory and Planetarium site. These will be allocated strictly on the basis of financial need. Enquiries and circumstances should be sent to Aileen McKee (ambn@arm.ac.uk) before June 11th.

Science Programme

The conference programme will be structured to a) review the major classes of hydrogen-deficient star, including new observational results and discoveries, and b) identify key themes connecting those classes:

Monday: Surveys and Statistics, Binaries, High-Mass Stars (stripped stars, WR stars, Bp(He) stars),

Tuesday: Low-Mass Stars (including RCrB stars, EHe stars, white dwarfs and hot subdwarfs)

Wednesday: Transients (including born-again events, H-def novae and SN Ib/c) + Excursion

Thursday: Ejecta (dust shells, planetary nebula...), Connections I - H-def stars from birth to death (merger and final-flash channels)

Friday: Pulsation, Connections II - H-def stars from birth to death (SN Ib/c progenitors and binaries)

Confirmed Speakers

Geoff Clayton, Stephan Geier, Ylva Götberg, JJ Hermes, Stephen Justham, Thomas Kupfer, Edward Montiel, Peter Nemeth, Nicole Reindl, Ashley Ruiters, Danny Steeghs, Patrick Tisserand, Peter van Hoof, Sung-Chui Yoon

Social Programme

Plans for the social programme currently include a welcome reception to be hosted by the Lord Mayor at the Archbishop's Palace, Armagh, an Irish night at the Navan Fort, ancient seat of the Kings of Ulster, an excursion into the countryside around Armagh including traditional Irish industry, the Brontë homeland, and the mountains of Mourne, tours of the Armagh Observatory, and the conference dinner (details subject to change). Subject to demand, there will be an additional programme for accompanying persons, and the possibility of a tour to the Giant's Causeway and Bushmills distillery on September 15th.

Scientific Organizing Committee

Simon Jeffery (Armagh, UK, chair)
Kameswara Rao (Bangalore, India)
Klaus Werner (Tubingen, Germany)
Orsola de Marco (Sydney, Australia)
Geoff Clayton (Louisiana, USA)
Ulrich Heber (Bamberg, Germany)
Lars Bildsten (USA)

Marcelo Miller Bertolami (Argentina)
Nicole Reindl (Leicester, UK)
Amanda Karakas (Melbourne, Australia)
Falk Herwig (Canada)

Local Organizing Committee

Simon Jeffery (chair), Conor Byrne, Carol Corvan, Martina Glass, Philip Hall, Leonard Knox, Victoria Knox, Aileen McKee, Pamela Martin, Holly Preece

Meeting Rationale

The Armagh Observatory and Planetarium will host a scientific conference from 2018 September 10 - 14 to address progress in the science of hydrogen-deficient stars.

The majority of stars have surfaces dominated by hydrogen, the most abundant element in the Universe. As stars shine, they convert hydrogen to helium and heavier elements. Many stars have already exhausted their hydrogen reserves; for some, even their surfaces are almost hydrogen free. Discovering how such stars form has been a challenge ever since 1795, when a dramatic variable star was first observed in the 'Northern Crown'. It was later found to be a hydrogen-free star blowing out great clouds of carbon-soot. R Coronae Borealis was discovered in the same decade that an Observatory was opened in Armagh, so it is appropriate that a team at Armagh has been studying similar stars for the last 20 years, finding evidence of colliding stars, born-again stars, and failed stellar explosions. It is also appropriate that, on the 50th anniversary of the opening of the Armagh Planetarium, the City of Armagh should host the fourth international conference on hydrogen-deficient stars.

After more than 200 years, the number and variety of hydrogen-deficient stars has multiplied several times. Classical examples include the R CrB and extreme helium stars, the hydrogen-deficient Ups Sgr binaries, and the hydrogen-deficient central stars of planetary nebulae or type II Wolf-Rayet [WC] stars. Since then have been added the PG1159 (or DO) pre-white dwarfs, several classes of He-sdO stars, the AM CVn binaries and various extremely low-mass pre-white dwarfs (ELM WDs). The conditions necessary to create a star deficient or devoid of hydrogen appear to be cataclysmic, for example involving an explosion contained within a star, or a collision between two stars. Such events may appear as transients, such as FG Sge or V4334 Sgr or other categories of novae.

The fourth such conference in 33 years, HDEF4 will review decadal progress on basic data and fundamental properties, and examine evidence from imaging and photometry for the dynamical nature of hydrogen-deficient stars. It will compare and contrast the physical models used to interpret the observables, and examine empirical evidence for connections between object classes. It will discuss models for long-term evolution of stars which become hydrogen-deficient, and models for the dynamical events which occur when they collide or explode. With a revolution likely to come from data provided by GAIA, the next decade of research in hydrogen-deficient stars will bring answers to questions being asked for over 200 years.