**Dear Colleagues,**

We are pleased to share the second circular for the **"Carbon Burning: Theory, Astrophysics and Experiments"** workshop, which will take place in Padova, Italy, from **June 30th to July 2nd, 2026**. The workshop aims to bring together the experimental, theoretical, and astrophysics communities to discuss recent advances and open questions regarding the $^{12}C+^{12}C$ fusion reaction, a crucial process in stellar evolution and nucleosynthesis.

We are delighted to report that a strong program of invited talks has been assembled, and registration is progressing well. Below you will find updated practical information to help you organize your participation.

## Registration and Abstract Submission

Registration is open and **no fee applies**. You can register through the conference website: https://indico.dfa.unipd.it/event/1643/registrations/272/

Participants are encouraged to submit abstracts for contributed talks through the abstract submission page: https://indico.dfa.unipd.it/event/1643/abstracts/

## Important Dates

- **Registration:** Open now
- **Abstract submission deadline:** End of April 2026
- **Workshop dates:** 30th June – 2nd July 2026
- **Website:** https://indico.dfa.unipd.it/event/1643

## Confirmed Invited Speakers

We are pleased to announce the following confirmed invited speakers, covering direct measurements, indirect and nuclear structure techniques, theoretical models, and astrophysical implications of carbon burning:

| Speaker | Affiliation | Preliminary Topic |
|---|---|---|
| **Alba Formicola** | *INFN Sezione di Roma* | Status of the $^{12}C$ + $^{12}C$ reaction at LUNA |
| **Alessandro Chieffi** | *INAF and INFN Sezione di Perugia* | **Review Talk -** The role of the $^{12}C$ + $^{12}C$ on the stellar evolution + Supernova |
| **Michael Wiescher** | *University of Notre Dame* | **Review Talk –** Experimental Techniques for $^{12}C$ + $^{12}C$ Reaction |
| **Marco La Cognata** | *INFN Laboratori Nazionali del Sud* | Modified R-matrix for the Trojan Horse Method |
| **Giovanna Montagnoli** | *Università degli Studi di Padova* | Low-energy fusion hindrance in medium-light systems |

| Speaker | Affiliation | Preliminary Topic |
|---|---|---|
| **Luciano Piersanti** | *INAF – Osservatorio Astronomico d'Abruzzo* | Carbon burning and type Ia supernova |
| **Marcel Heine** | *IPHC Strasbourg* | Status of the $^{12}C + ^{12}C$ at STELLA |
| **Antonino Di Leva** | *Università degli Studi di Napoli and INFN Napoli* | Status of the $^{12}C + ^{12}C$ at ERNA-CIRCE |
| **Xiaodong Tang** | *Institute of Modern Physics, Chinese Academy of Sciences* | Status of the $^{12}C + ^{12}C$ at LEAF-DTL |
| **A. M. Mukhamedzhanov** | *Texas A&M University* | **(Online)** Modified Trojan Horse Method |
| **Thibaut Dumont** | *Université de Strasbourg, CNRS, IPHC* | $^{12}C+^{12}C$ & $^{12}C+^{16}O$ reaction rates and stellar evolution |
| **Edward Simpson** | *Australian National University* | **(Online)** R-matrix calculations for $^{12}C+^{12}C$ |
| **Lorenzo Roberti** | *Konkoly Observatory and CSFK HUN-REN* | Impact of $^{12}C+^{12}C$ on massive stars nucleosynthesis |
| **Marco Pignatari** | *Konkoly Observatory and CSFK HUN-REN* | Impact of $^{12}C+^{12}C$ on massive stars nucleosynthesis of the elements heavier than iron |
| **Yuanbin Wu** | *Nankai University* | Screening effect in stellar environments |
| **Q. G. Wen** | *Anhui University* | **(Online)** THM measurement of $^{12}C+^{12}C$ |
| **Aliya Nurmukhanbetova** | *Nazarbayev University* | R-matrix study for the $^{12}C + ^{12}C$ reaction |
| **David Jenkins** | *University of York* | Extending the Hoyle-state paradigm to $^{12}C + ^{12}C$ fusion |

*Additional contributed talks will complete the program. Slots for contributed presentations are still available.*

## Social Dinner

A social dinner will be offered to all registered participants on the evening of the first day (Tuesday, June 30th) at the historic **Caffè Pedrocchi**, one of the most iconic landmarks of Padova. Inaugurated in 1831 and famously known as “the café without doors” for its tradition of staying open day and night, Pedrocchi is located in the heart of the city center, just a short walk from the conference venue. The dinner is included at no additional cost.

## Venue and Logistics

The workshop will take place in the Conference Hall of **Palazzo del Monte di Pietà**, a magnificent historic building located in Piazza Duomo, in the heart of Padova's old town. The venue is within easy walking distance of the main university buildings, restaurants, and hotels.

Meals (lunches) are at the expense of the participants. On the conference website, you will find restaurant suggestions near the venue.

## Accommodation

Padova offers a wide range of accommodation options. We recommend booking as early as possible. The conference website lists some suggested hotels conveniently located near the venue. The historic city center has many hotels, B&Bs, and apartments within walking distance of Palazzo del Monte di Pietà.

## Contact

For any questions or additional information, please do not hesitate to contact us:

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We look forward to welcoming you in Padova for this focused and timely workshop on carbon burning fusion.

Best Regards,

**The Organizing Committee**

**Jakub Skowronski (Chair)** – Università degli Studi di Padova and INFN Padova
**Raffaele Buompane** – Università degli Studi della Campania "Luigi Vanvitelli" and INFN Napoli
**Antonio Caciolli** – Università degli Studi di Padova and INFN Padova
**Sandrine Courtin** – Université de Strasbourg, CNRS, IPHC UMR
**Federico Ferraro** – INFN Laboratori Nazionali del Gran Sasso
**Faïrouz Hammache** – IJCLab, Orsay
**Maria Lugaro** – Konkoly Observatory, Research Centre for Astronomy and Earth Sciences, HUN-REN
**Eliana Masha** – HZDR Helmholtz Zentrum Dresden Rossendorf
**Xiaodong Tang** – Institute of Modern Physics, Chinese Academy of Sciences
**Aurora Tumino** – Università degli Studi di Enna "Kore" and INFN Laboratori Nazionali del Sud