

28<sup>th</sup> ICDERS

International Colloquium on the Dynamics of Explosions and Reactive Systems

EXPLOSIONS

Colloquium  
Dynamics

$RE_a + CT_i V_e \leftrightarrow S_y + ST_e MS$

International

Naples - June 19-24, 2022



# 28<sup>th</sup> International Colloquium on the Dynamics of Explosions and Reactive Systems

Sunday 19 - Friday 24 June 2022

Napoli, Italy

Call for Extended Abstracts

The **International Colloquia on the Dynamics of Explosions and Reactive Systems (ICDERS)** have been the premier international forum for the presentation of scientific contributions in the fields of explosions and unsteady combustion, where there is a strong coupling between reaction and fluid mechanics. Since its founding in 1967 by N. Manson, A.K. Oppenheim, and R. Soloukhin, the colloquia have been held every two years. The Combustion Institute recognizes them as a Specialists Meeting on the fluid dynamics of combustion.

**Prior ICDERS Meetings:** Bruxelles (1967), Novosibirsk (1969), Marseille (1971), San Diego (1973), Bourges (1975), Stockholm (1977), Gottingen (1979), Minsk (1981), Poitiers (1983), Berkeley (1985), Warsaw (1987), Ann Arbor (1989), Nagoya (1991), Coimbra (1993), Boulder (1995), Krakow (1997), Heidelberg (1999), Seattle (2001), Hakone (2003), Montreal (2005), Poitiers (2007), Minsk (2009), Irvine (2011), Taipei (2013), Leeds (2015), Boston (2017), Beijing (2019).

## Venue



For the first time in more than 50 years, the next 28<sup>th</sup> edition will be held in Italy, in the beautiful and historic city of Naples. It is hosted by the National Research Council – Institute for Science and Technology for Sustainable Energy and Mobility (CNR – STEMS), in cooperation with the University of Naples *Federico II* and the University of Sannio and the assistance of MCM Eventi e Congressi..



The Chair of the Host Committee is Francesco Saverio Marra (CNR-STEMS).

## Scientific Program

The Colloquium encompasses and welcomes both basic and applied research. Specific examples of contributions from previous years can be found by visiting the website of the Institute for the Dynamics of Explosions and Reactive Systems (IDERS), <http://www.icders.org>, which has links to a collection of ICERS proceedings.

Chairs of 28<sup>th</sup> ICERS are:

**Akiko Matsuo (Chair)**, Keio University, Japan;  
Andrea Comandini (Co-Chair), CNRS-ORLEANS, France;  
Ng Hoi Dick (Co-Chair), Concordia University, Canada;  
Mirko Gamba (Co-Chair), University of Michigan, USA.

During the five days of works, plenary lectures and special sessions will cover the most advanced topics. Oral and poster presentations will represent an opportunity for an up-to-date view of the current research trends. The scheduled events are intended to promote the meeting among the participants.

## Topics

- *Detonation dynamics, structure, initiation and limits*
- *Dynamics of flame acceleration and DDT*
- *Dynamics of reactive supersonic flows*
- *Propulsion applications of detonations and high-speed flames*
- *Pressure gain combustion, including pulsed, constant volume, and detonative combustion*
- *Astrophysical deflagrations and detonations*
- *Reactive dynamics of energetic materials*
- *Dynamics of Laminar and turbulent flames*
- *Turbulence in compressible reacting flows*
- *Multiphase reactive flow dynamics*
- *Gas and dust explosions*
- *Explosion safety*
- *Fire dynamics*
- *Diagnostics for reactive systems*
- *Numerical methods for reacting flows*
- *Nonlinear analysis and reactive analogues*
- *Modeling of reactive systems, including data-driven and machine learning-based methods*
- *Chemical reaction kinetics and reaction dynamics*
- *Ignition phenomena*
- *Reaction wave instabilities and quenching*
- *Relaxation phenomena in shock waves*
- *Combustion acoustic phenomena*
- *Nanoparticles and soot in reactive systems*
- *Combustion processes in IC engines*

## Extended abstract submission

The submission of 4 or 6 pages extended abstracts for contributions to the colloquium is open. An international committee will review each contribution.

**The deadline for the submission of extended abstracts is on September 10, 2021.**

Notification of acceptance of Extended Abstracts: December 1st, 2021.

Final revised Extended Abstract submission: April 29, 2022.

Submission of short abstracts for WiP posters is open until **April 15, 2022**.

Timely and detailed information, instructions for Extended Abstracts submission, Abstract templates, and key dates are published on the official conference website:

<http://www.28icders.stems.cnr.it>

Authors of papers accepted for presentation are encouraged to submit full-length versions to one of these journals: **Combustion Science and Technology**, **Combustion Theory and Modeling**, and **Shock Waves**.

## Social program

A welcome party will greet all participants in the afternoon of the Sunday preceding the Colloquium. An excursion is scheduled from midday to late afternoon on Wednesday as an informal relaxing occasion. The social dinner is the main event organized on Thursday evening. A farewell cocktail party will end the meeting.

A special event for the younger participants, “The Young Researchers Night” is planned for Tuesday in an enjoyable place in the historic and alive city center.

## Accompanying person program

Naples city center and neighborhoods offer a wide variety of locations for cultural visits (as the Naples City Center, Pompei, Ercolaneum, Campi Flegrei, Archeological Museums and Picture Galleries, Monumental Churches), as well for summertime activities at sea or excursions in nature (as Capri and Ischia Islands, Sorrento, Amalfi, Vesuvius Volcanos). Our organization will help everyone liking to make a visit to these or other places.

Contact Information: [28icders@stems.cnr.it](mailto:28icders@stems.cnr.it)

Please join our ICDERS Google Group to receive emails about meeting announcements: <https://groups.google.com/g/icders>

## COVID-19 special advices.

*The 28<sup>th</sup> ICDERS, originally planned to be held in August 2021, has been postponed in the hope that it can be held fully in person, to represent the occasion for fruitful discussions, the inclusion in the community of younger scientists, and for meeting opportunities. The conversion to a partially or fully online conference will be adopted if, in the case of the persistence of the pandemic, totally safe conditions for health cannot be guaranteed or in observance of governmental prescriptions.*