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Developing the next generation of renewable energy technologies

CONDOR

COmbined suN-Driven Oxidation and CO₂ Reduction for renewable energy storage

Starting date of the project: 01/11/2020
Duration: 48 months

= Deliverable D9.3 =
CONDOR Final Conference

Dissemination level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	



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Executive Summary

Deliverable D9.3 *CONDOR Final Conference* provides a comprehensive overview of the final dissemination event of the CONDOR project. The event, titled "*From Sunlight to Molecules*," was organized by the [National Research Council of Italy – Institute for Organic Synthesis and Photoreactivity \(CNR - ISOF\)](#), UNIBO and AMIRES and took place on October 14th -15th, 2024, in Bologna, Italy.

The final conference was a success, with high attendance from both consortium partners and external stakeholders. It created an interactive environment for all participants, fostered valuable discussions on the latest advancements in artificial photosynthesis and renewable energy. Participants engaged with a range of presentations that highlighted the CONDOR's objectives and outcomes, deepening their appreciation for the innovative research. The event concluded with a guided tour of the project's testing sites, offering insights into practical applications of the science in the field of artificial photosynthesis.

The CONDOR conference received extensive communication coverage, including multiple social media posts to enhance its visibility.

The document includes details on event organization, the programme, the dissemination campaign promoting the workshop, and photos capturing key moments and impressions.



Figure 1 CONDOR Final Conference Meeting

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1. Introduction

Deliverable D9.3 *CONDOR Final conference* is part of *Task 9.1 Dissemination, communication and public events*, focused on dissemination, communication, and public events. As outlined in the project plan, the consortium should organize a final public event to showcase the CONDOR system, developed during the project implementation.

Hosted by the CNR-ISOF, the Final Conference took place as a lunch-to-lunch event on October 14th and 15th, 2024, in Bologna, Italy. The primary objective of this final dissemination event was to officially present the project's concept and key achievements to a broad external audience, while also showcasing the consortium's expertise and capabilities.

This deliverable provides a comprehensive overview of the CONDOR Final Conference and its key components. It begins with details on the organizational aspects (e.g., venue, date, program). Additionally, the document includes a visual summary to capture the overall impressions and highlights of the conference. The final section covers the dissemination campaign and communication efforts aimed at promoting the event.

2. Event organization

2.1. Venue

The conference, titled "From Sunlight to Molecules," was held at the [Institute for Organic Synthesis and Photoreactivity \(ISOF\)](#), part of the [National Research Council of Italy \(CNR\)](#), in Bologna, Italy.



Figure 2 Venue of the CONDOR Final Conference

The Italian National Research Council is the largest public research organization in Italy, structured into 7 departments and over 100 institutes across the country, conducting research and technological development in a wide range of disciplines. ISOF, which belongs to the Department of Chemical Sciences and Materials Technologies, employs over 60 permanent staff and specializes in photonics, solar energy conversion, and advanced material research.

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The selection of CNR-ISOF as the venue was driven by the installation of the CONDOR system compartments at dedicated sites, enabling testing in real open-air conditions. This unique location facilitated an outdoor showcase of the CONDOR prototype. Furthermore, the venue's excellent accessibility for both domestic and international attendees greatly enhanced participation in the conference.

2.2. Date

The CONDOR Final Conference “From Sunlight to Molecules” was structured as a lunch-to-lunch event, taking place on October 14th and 15th, 2024.

The timing of the event was strategically chosen, aligning with the official end of the CONDOR project (Month 48, October 31), allowing us to present the project's key outcomes and demonstrate the developed prototype.

2.3. Programme

The programme of the CONDOR Final Conference was carefully designed by the Project Coordinator and Dissemination Manager, coordinated with the host organisation, to optimally structure the topics and timing of the event.

As the conference title, From Sunlight to Molecules, suggested, the event's unifying theme centered on integrating artificial photosynthesis with renewable energy, aligning with the project's goals. The program was carefully structured to provide a progressive understanding of the project's work. On the first day, sessions ran from 1:00 p.m. to 5:30 p.m., followed by a second day that resumed at 9:30 a.m. and concluded at 12:30 p.m. Both days featured a series of talks, strategically organized to lead up to the final segment—a visit to the project's prototype. This structure offered attendees a comprehensive overview of the project's outcomes, developed solutions, and the design of the prototype.



Figure 3 Settings at the venue place

In terms of social media promotion, the program was disseminated in phases, initially introducing the speakers and their organizations, followed by a complete version that included the titles of their presentations (see *section 5. Dissemination & communication*).

AGENDA **FINAL CONFERENCE**

From Sunlight to Molecules

 **DATE: 14 OCTOBER 2024**

- 12:45** *Lunch for consortium partners*
- 14:00 – 14:30** **Welcome and meeting opening**
Keynote speech "From sunlight to molecules: the big picture"
 Nicola Armaroli, Institute for Organic Synthesis and Photoreactivity
- 14:30 – 14:50** **CONDOR: COMBINED suN-DRIVEN OXIDATION AND CO₂ REDUCTION FOR RENEWABLE ENERGY STORAGE**
 Paola Ceroni, Alma Mater Studiorum, University of Bologna
 Anastasia Grozdanova, AMIRES
- 14:50 – 15:20** **Hybrid photocathode with backside illumination: a new paradigm for solar fuel production**
 Marc Robert, Sorbonne University
- 15:20 – 15:40** **Molecular anodes for solar fuels devices**
 Antoni Llobet, Institute of Chemical Research of Catalonia - ICIQ
- 15:40 – 16:00** **Coffee break**
- 16:00 – 16:20** **Structural characterization of semiconductors and catalysts in CONDOR photoanodes, including operando techniques**
 Luca Pasquini, Alma Mater Studiorum, University of Bologna
- 16:20 – 16:40** **Ultrafast dynamics in CONDOR photoanodes**
 Barbara Ventura, Institute for Organic Synthesis and Photoreactivity
- 16:40 – 17:00** **Photoelectric materials for artificial synthesis**
 Stefano Caramori, University of Ferrara
- 17:00 – 17:30** **Hybrid photoelectrodes for Solar Fuel Production**
 Gerald Meyer, University of North Carolina at Chapel Hill
- 17:30** **Wrap Up and closing remarks**
- 18:30** *Dinner keynote speech: 'The Hydrogen Vector: Challenges and Perspectives,' followed by an open discussion (for consortium members only)*
 Nicola Armaroli, Institute for Organic Synthesis and Photoreactivity

 **DATE: 15 OCTOBER 2024**

- 09:30 – 09:40** **Welcome and meeting opening**
- 09:40 – 10:10** **Carbon-based hierarchical nanostructures for electrocatalysis**
 Francesco Paolucci, Alma Mater Studiorum – University of Bologna and Center for Chemical Catalysis – "C3"
- 10:10 – 10:30** **Design and operational challenges of large-scale PEC systems**
 Laurent Baraton, ENGIE CRIGEN
- 10:30 – 11:00** **Integrating a discontinuous supply into a continuous process (CONDOR system)**
 Hans ten Dam, HYGEAR
- 11:00 – 11:20** **Coffee break**
- 11:20 – 11:30** **Wrap Up and closing remarks**
- 11:30 – 12:30** **Behind the Scenes: CNR lab tour**
- 12:30** *Lunch for consortium partners*

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Figure 4 CONDOR Final Conference Programme

3. Participants

3.1. Participants

The conference was successful, with attendance exceeding expectations. The room was filled to capacity, reflecting the strong interest and engagement of participants. Registration closed a week before the event, as the venue had reached its maximum limit.

A total of 91 participants attended the CONDOR Final Conference, comprising a diverse mix of representatives from partner organizations, research institutions, industrial companies, as well as experts and early-career researchers in artificial photosynthesis. This diverse group fostered fruitful discussions between academia and industry, promoting a dynamic exchange of ideas.



Figure 5 Participants of the CONDOR Final Conference

Participants felt extremely welcomed at the CNR-ISOF premises and were particularly enthusiastic about the opportunity to visit the project prototype and learn more about the work conducted by the consortium partners.

Note:

The list of registered participants, including both external attendees and involved partners from the consortium, is available. However, due to the public nature of this deliverable and in compliance with GDPR regulations, the full list of attendees is not included in this document but is available to the CINEA Project Officer and reviewers upon request.

3.2. Gender dimensions

Addressing the gender dimension in research is essential for advancing gender equality, and this was carefully considered in organizing the CONDOR Final Conference. The event aimed to create an inclusive environment that fostered diverse perspectives and open dialogue.

Although fewer women were featured among the speakers, this was balanced by a strong representation of female participants in the audience. Notably, out of 91 registered attendees, 44 were women, reflecting the event's commitment to inclusivity in participant engagement.

The presence of a varied audience enriched the dialogue and contributed to a more comprehensive exploration of the topics, underscoring the importance of diversity among both speakers and participants. This dynamic highlighted our commitment to promoting gender equity within the scientific community.

4. CONDOR Final event

The CONDOR Final event fostered a highly interactive atmosphere, beginning with a keynote speech by Nicola Armaroli, Research Director at CNR-ISOF. In his talk, *"From Sunlight to Molecules: The Big Picture,"* he provided compelling insights on harnessing solar energy to drive innovation toward a sustainable future. He emphasized the EU's responsibility in tackling global greenhouse gas issues, highlighted the need for decarbonization and stressed the importance of alternative sources like water and CO₂. He also outlined the challenges and opportunities in developing solar-to-chemicals technologies, which require significant R&D support and commitment.

Building on this context, Project Coordinator Prof. Paola Ceroni (Alma Mater Studiorum – University of Bologna) and Project Manager Anastasia Grozdanova (AMIRES) took the stage to provide a comprehensive overview of the CONDOR project, outlining its goals and the distribution of roles among the partners. They also shared valuable insights into the dissemination and exploitation activities, emphasizing their significance in maximizing the project's outcome.



Figure 6 Keynote speech
by Nicola Armaroli



Figure 7 Project overview
by Coordinator Prof. Paola Ceroni

Over two days, distinguished speakers, including Work Package Leaders from CONDOR project, shared valuable insights into advancements in solar energy and artificial photosynthesis. They presented on various topics, beginning with innovations in molecular anodes for solar fuel devices, which focused on enhancing energy conversion efficiency. Following this, discussions highlighted the structural characterization of semiconductors and catalysts in photoanodes, emphasizing the importance of real-time analysis for optimizing material performance.

Presentations also explored ultrafast dynamics in photoanodes, revealing critical insights into the mechanisms that influence their efficacy. Additionally, advancements in photoelectric materials for artificial synthesis were discussed, showcasing their potential for sustainable energy solutions. The conference culminated in a presentation on integrating a discontinuous supply into a continuous process, addressing operational challenges and innovations aimed at improving efficiency.

Collectively, all talks provided a comprehensive overview of performed research, demonstrating the collaborative efforts and outcomes achieved within the CONDOR project.



Figure 8 Speakers at the CONDOR Final Conference

(left: Prof. Luca Pasquini, Department of Physics and Astronomy "Augusto Righi" at Alma Mater Studiorum, University of Bologna, right: Prof. Gerald Meyer, Department of Chemistry at the University of North Carolina at Chapel Hill)



Figure 9 Speakers at the CONDOR Final Conference

(left: Barbara Ventura, Research Director at the Institute for Organic Synthesis and Photoreactivity (ISOF) of the Italian National Research Council (CNR), right: Hans ten Dam, Director R&D at HYGEAR)

During the coffee breaks, attendees had the opportunity to engage with the speakers, fostering valuable interactions and discussions about their presentations and the latest advancements in the field. This informal setting also facilitated networking among participants, allowing them to share insights, explore potential collaborations, and exchange further details about ongoing research initiatives.



Figure 10 Coffee breaks and networking possibilities

As the event came to a close, all attendees were invited to take part in a guided tour of *the Institute for Organic Synthesis and Photoreactivity (ISOF)*. Participants had the chance to explore each component of the CONDOR prototype, with teams from HyGear and ENGIE offering detailed insights into their respective contributions.

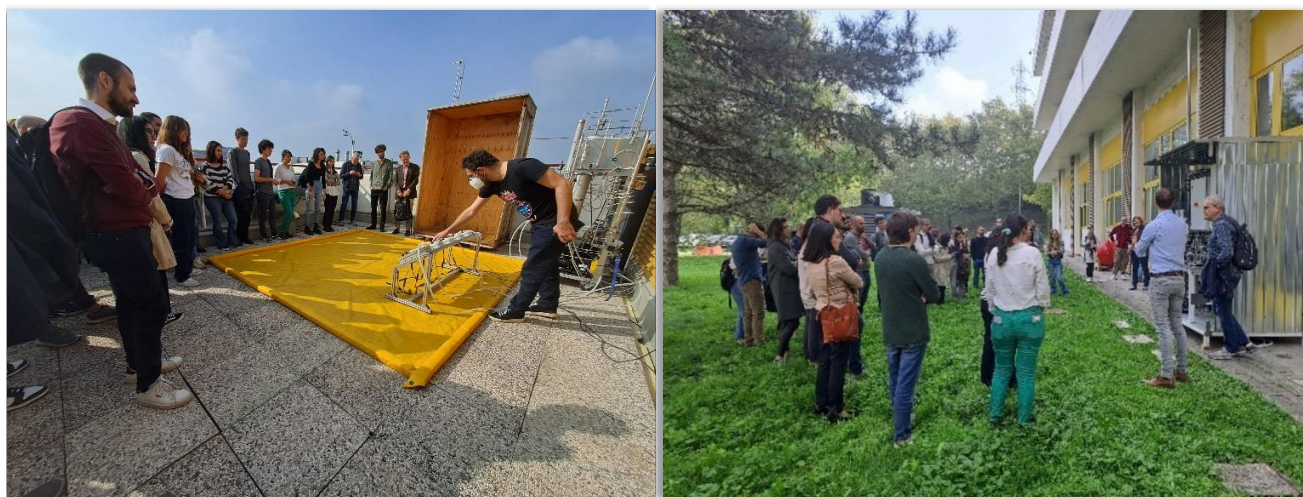


Figure 11 Guided Tour of the CNR-ISOF

The engaging atmosphere fostered meaningful interactions, enriching their understanding of the work on the CONDOR prototype currently located there. The content of the presentations and the visit to the demonstrator allowed attendees to delve deeper into the project's objectives and outcomes, enhancing their appreciation for the innovative research in the field.

5. Dissemination & communication

To maximize the outreach of the CONDOR Final Conference, a comprehensive online campaign was developed to promote the event across various channels in the weeks leading up to it. The campaign was supported by a communication kit that included a set of static assets in multiple formats (posts on X and LinkedIn, email banners, and invitations with the programme), along with pre-prepared text for email campaigns. Spanning over three months prior to the event, the campaign utilized the communication platforms of project partners, as well as external networks such as the *Italian Chemistry Associations*. Significant promotional efforts were led by the event organizers.

5.1. Banner

The campaign featured a prominent banner that included information on the event:

- ✚ conference title,
- ✚ dates,
- ✚ venue details,
- ✚ registration link.

To maximize visibility, this banner was incorporated not only in emails but also as a pop-up on the project website. As previously mentioned, the dissemination campaign successfully garnered around 100 registrations, reflecting significant interest in the event. This comprehensive approach helped ensure that potential attendees were well-informed and encouraged to participate.



Figure 12 CONDOR Final Conference banner

5.2. Website and social media coverage

All that was happening with relation to the CONDOR final event was covered extensively via its communication channels, as well as through communication channels of the partners.

Main channels used are the project's website (<https://condor-h2020.eu/>), LinkedIn profile (<https://www.linkedin.com/company/91667043/admin/dashboard/>) and X account (https://x.com/CONDOR_EU). While the activity on the website has remained relatively unchanged during this heavier campaigning period, the LinkedIn and X profile posts about the event all had around 3000 impressions.

All information has been posted on social media and shared widely across various networks, including universities and associations. For example, the LinkedIn announcement received 366 clicks, generated 99 reactions, and garnered 2,729 impressions.

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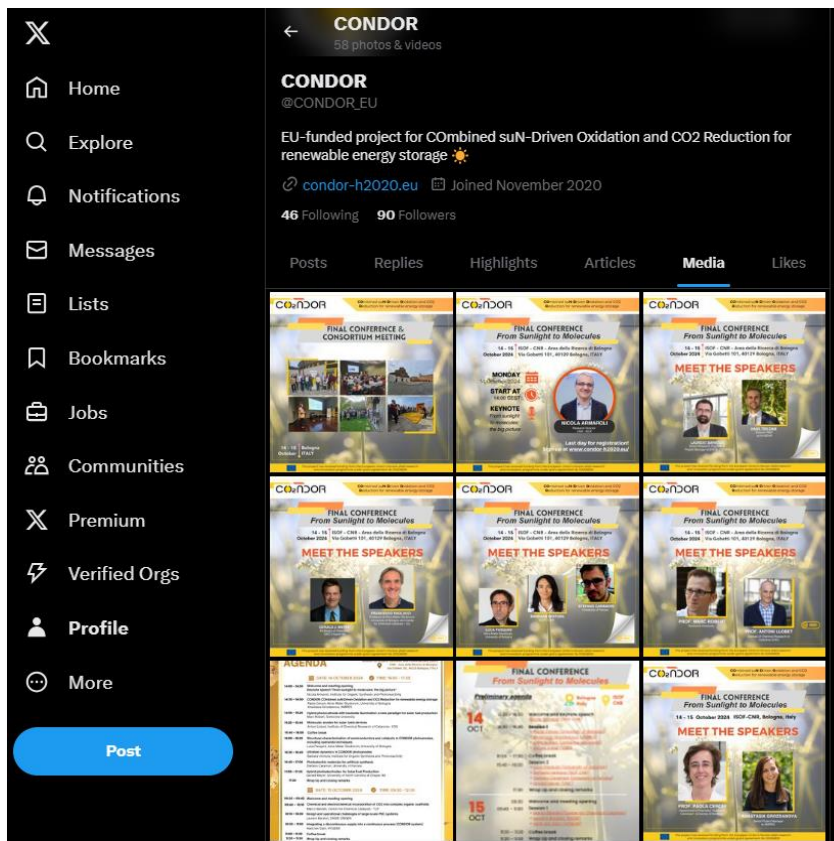


Figure 13: Examples of posts in CONDOR account in LinkedIn and an overview of the posts on in X

The Promotion of the CONDOR Final Event was supported by sharing the information on partners media (<https://www.amires.eu/save-the-date-condor-final-conference/>).

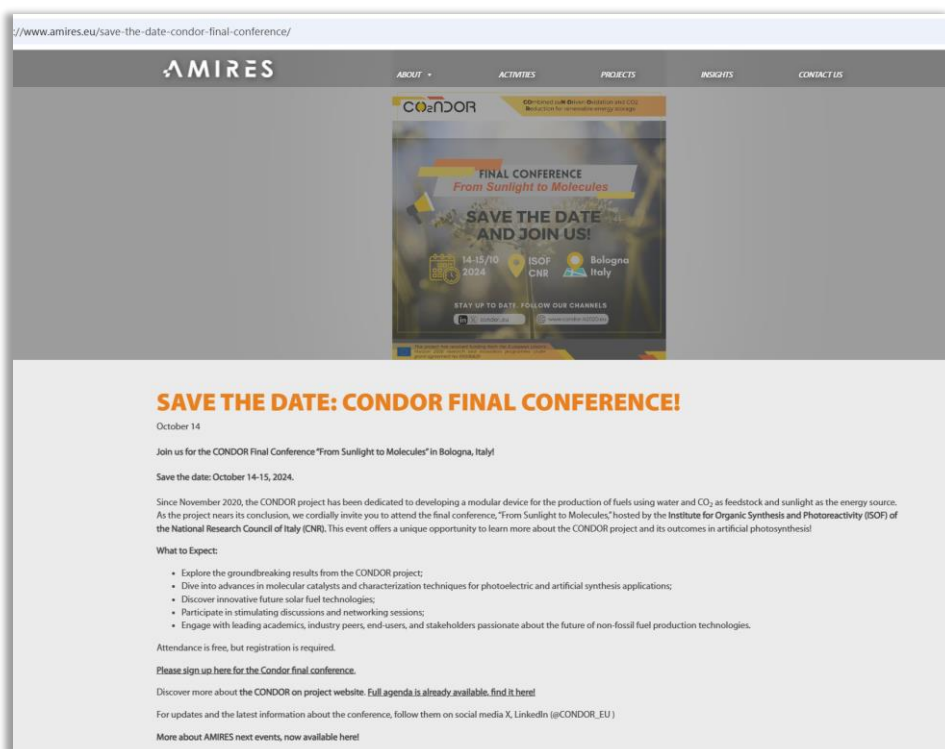


Figure 14 Promotion of the CONDOR Final Event on www.amires.eu website

6. Gratitude and Recognition

We would like to extend our heartfelt gratitude to everyone who attended the workshop and contributed to making this event a resounding success. Our sincere thanks go to our distinguished speakers, the dedicated partners of the CONDOR project, and the members of our External Advisory Board.

In particular, we wish to express our appreciation to the *University of Bologna (Italy)* as coordinator, *ICIQ (Spain)*, the *Italian Research Council (Italy)*, *University of Utrecht (The Netherlands)*, the *University of Ferrara (Italy)*, *ENGIE Laborelec (Belgium)*, *Engie (France)*, *Amires SRO (Czech Republic)* and *Hygear (The Netherlands)* for their invaluable contributions and involvement.

We are also grateful to *Prof. Gerald Meyer* from the University of North Carolina at Chapel Hill (United States), our esteemed external international partner, and *Prof. Marc Robert* from Sorbonne University (France), a valued member of our External Advisory Board. Your insights and expertise have significantly enriched our discussions and have played a crucial role in the overall success of the conference. Thank you all for your commitment and support!



Figure 15 CONDOR team

7. Conclusions

This document represents Deliverable D9.3, titled "*CONDOR Final Conference: From Sunlight to Molecules.*" The event was hosted by the Institute for Organic Synthesis and Photoreactivity (ISOF), part of the National Research Council of Italy (CNR), and co-organized with AMIRES on October 14th – 15th, 2024, in Bologna, Italy.

The CONDOR Final Conference served as the public event to officially close the project and showcase the results achieved. It presented an opportunity to learn more about the CONDOR project and its outcomes in artificial photosynthesis. The event provided a platform for the scientific community and stakeholders to engage with the results and offered a vibrant atmosphere for networking, collaboration, and knowledge exchange.

The conference can be considered a success, attracting significant attention. Approximately 100 participants attended in person, offering an excellent opportunity for attendees to engage directly with the CONDOR project team and to exchange perspectives with the broader audience.

8. Degree of progress

The deliverable is 100% fulfilled and represents the outcomes of the CONDOR Final Conference.

9. Dissemination level

The Deliverable D9.3 is public and therefore it will be available to download on the project's website.