

CONSOLFOOD2023

Fifth International Conference: Advances in Solar Thermal Food Processing

We invite you to join us at CONSOLFOOD2023.

Many people in developing countries still burn wood, charcoal, or even garbage on open fires for cooking purposes because they do not have access to electricity or gas. The inefficient burning of wood, charcoal, dung, and plant residues causes health problems, deforestation and greenhouse gas emissions. The potential of thermal solar energy for food processing tasks like drying, cooking, and pasteurization is well understood, but adoption of this technology is not increasing as rapidly as would be desirable. In the sunny parts of the developed world, few people would recognise a solar cooker, and most still use only gas and electricity for cooking. The introduction of solar cookers in sunny areas for cooking, food drying, and water sterilization is our goal.

As result of the first call for submission of abstracts 42 works were selected to be presented as oral communications with 10 min and 20 minutes in our fifth conference. If you have an unsubmitted interesting work please write soon your abstract with a limit of 400 words, follow these guidelines: <https://eric.ed.gov/?abstract> and send it via e-mail to cruivo@ualg.pt

Conference Proceedings: The organizing committee encourages all authors to write an optional **full length paper** for inclusion in our conference proceedings.

Presentation formats:

Recorded presentations, with a duration of about 10 min or 20 min, using Powerpoint or other software.

Fee: We are planning to run the conference in **hybrid format** with a fee of 200 euros before 15th June 2023 and 300 euros after 15th June 2023. Interested people facing financial difficulties should contact the organizing committee. Registration period is now open. Please send your **PARTICIPANT REGISTRATION DATA** (name, phone number, profession, email address, company or institution, address, country) and **REGISTRATION DATA TO BE INSERTED IN INVOICE** (Name of payer of your registration fee, address, country, VAT number if you have one):

For updated information on CONSOLFOOD2023 go to www.consolfood.org

12-13-14 July 2023
A CORUÑA-SPAIN

Fifth International Conference CONSOLFOOD2023 >Advances in Solar >Thermal Food Processing

CONSOLFOOD 2023 is being planned, not for winter time in Faro-Portugal, but for summer time in **Galicia (CIFP SOMESO, A Coruña, Spain)**, i.e., in the home town of our great solar cooking friend Juan Bello Llorente. An exhibition of solar cookers will be available for viewing during the conference days. We will use these cookers to produce our solar lunch, with the help of our friend, the sun

The whole CONSOLFOOD2023 conference program will be delivered in hybrid format, so those who register, but are not present at CiFP Someso, will be able to participate online.

Once again, we will focus on advances in solar cooking, solar food processing, and related topics. As usual, we are attracting experts from all over the world to present and discuss the latest developments.

Institutional Support



Tentative programme:

12th July 2023

10:00 - 14:30

Installing the solar cookers
in the exhibition area
for real solar cooking

16:00 - 16:15 **Opening session**

16:15 - 18:00 Presentations - **session 1**

18:00 - 18:15 **Break**

18:15 - 20:00 Presentations - **session 2**

13th July 2023

10:00 - 14:30

Exhibition of solar cookers
Real solar cooking

14:30 - 15:45 **Solar lunch**

16:00 - 18:00 Presentations - **session 3**

18:00 - 18:15 **Break**

18:15 - 20:00 Presentations - **session 4**

20:00 - 21:00 **Surprise session**

14th July 2023

10:00 - 14:30

Exhibition of solar cookers
Real solar cooking

14:30 - 15:45 **Solar lunch**

16:00 - 18:00 Presentations - **session 5**

18:00 - 18:15 **Break**

18:15 - 20:00 Presentations - **session 6**

20:00 - 20:30 **Closing session**

Note :Times mentioned above are for Madrid-Spain
(CEST — Central European Summer Time)

Organizing and Scientific Committees:

Celestino Ruivo, (Chairman 1)

Institute of Engineering, University of Algarve, Portugal

Association for the Development of Industrial Aerodynamics, Portugal

Juan Bello Llorente, (Chairman 2)

CIFP Someso, A Coruña, Spain

Alberto Hernandez Neto, University of São Paulo, Brazil

Ajay Chandak, PRINCE Suman Foundation, India

Angeles López Agüera, University of Santiago de Compostela, Spain

Armando Inverno, Institute of Engineering, University of Algarve, Portugal

Célia Quintas, Institute of Engineering, University of Algarve, Portugal

Dave Oxford, SLiCK Solar Stove, UK

Eduardo Armando Rincón Mejía, Universidad Autónoma de la Ciudad de México, México

Francisco Javier Macias, University of Huelva, Spain

Gianluca Coccia, Marche Polytechnic University, Italy

Hideo Oguri, HUMAN TECH LAB, Japan

João Nuno Pinto Miranda Garcia, Instituto Superior de Engenharia de Lisboa, Portugal

Kartikey Gupta, Vatsalya, India

Luis Paulo Coelho Neto, Instituto Politécnico de Castelo Branco, Portugal

Luther Krueger, Big Blue Sun Museum of Solar Cooking, Minneapolis, USA

Michael Bonke – LAZOLA Initiative for Spreading Solar Cooking, Germany

Octavio García Valladares, Instituto de Energías Renovables, Universidad Nacional Autónoma de México, México

Xabier Apaolaza Pagoaga, University of Málaga, Spain

Institutional support:



No.	Title, authors and country
2	Thermofluids' issues of modeling a flat plate solar air heating collector (SAHC) with sensible thermal energy storage (TES) for drying in an energy-vulnerable environment, Antonio Lecuona-Neumann (Spain)
3	Photovoltaic solar cooking with PTC ceramic heaters without batteries, Jean Boubour, Antonio Lecuona-Neumann (France, Spain)
4	A solar cooking case study in Kakuma Refugee Camp, Kenya, Caitlyn Hughes, Mindy Fox (USA)
5	Using solar cookers to feed 35 – 50 people per day at the Tamera Community, Hannah Larndorfer (Portugal)
6	Development and testing of a novel solar dryer design with an incorporated heat exchanger, Adam Probert, Marion Karlsson Faudot, Ananta Aacharya, Bivek Baral, Martin Andersson, Henrik Davidsson (Sweden, Nepal)
7	Where should we bake bread ?, Benjamin Pillot, Guillaume Guimbretière, Christophe Révillion, Corrie Mathiaka, Romain Authier (France)
8	Characterization of an evacuated tube duplex solar cooker (ETDSC), Ángel Marroquín de Jesús, Luz Carmen Castillo Martínez, Sandra Soto Álvarez, Juan Manuel Olivares Ramírez (Mexico)
9	Valorization of solar drying process in the production of dried Moroccan apricots, Jeddi Mohamed Rida, Boukendil Mohammed, El Moutaouak Lahcen, Idlimam Ali, Ouabou Rachidab, Hssaini Lahcen (Morocco)
10	The impact of induced air flow on the drying process of apples inside a solar drying chamber, Marion Karlsson Faudot, Adam Probert, Ananta Aacharya, Bivek Baral, Paula Viola, Martin Andersson, Henrik Davidsson (Sweden, Nepal)
11	Performance evaluation of a professional cooktop powered by a Scheffler reflector, Gabriel Guillet, Thomas Fasquelle, Séverine Barbosa, Benjamin Kadoch (France)
12	Thermal storage for solar dryers, Henrik Davidsson, Adam Karlsson, Christian Rissler, Ananta Aacharya, Bivek Baral, Martin Andersson (Sweden, Nepal)
13	Development of table-type solar cooker, Hideo Oguri (Japan)
14	Use of a Scheffler-type solar concentrator for processing Licuri pulp as an alternative to conventional fuels, Pedro Henrique Campello Santos; Tiago Batista Cerqueira; Célio Dantas de Santana; Alexandre Boleira Lopo; Gertrudes Macário de Oliveira; Márcia Virginia Pinto Bonfim; Deborah Santos Garruti, Fábio del Monte Coccozza (Brazil)
15	Sustainable and creative tourism: a way to disseminate the virus of solar cooking, Paulo Pinto (Portugal)
16	Solar-thinking seeds, how to introduce the use of solar cooking in the vegetable garden in the school, Irene Lucas, (Austria)
17	Stem through solar cooking – students and teachers engage with solar cooking themed-based learning, Mary Buchenic, Jennifer Gasser (USA)
18	Solar cooking in the rural zones of Mexico, Luis Edoardo García Sánchez, María del Carmen Salinas Cortés (Mexico)
19	The Tolokatsin 2022, a sustainable solar oven, Eduardo Rincón Mejía, Eduardo González Mora, Marina Islas Espinoza (Mexico)
20	Training people in solar thermal food processing for enhancing green economy and ecology, Janak Palta McGilligan (India)
21	Uplifment of women farmers through solar dryer technology in different parts of India, Neha Mehta, Kinjal Pandya (India)
22	General social attitude towards solar thermal food processing in North Rajasthan, Kartikey Gupta (India)
23	Design and construction of a solar dryer with hybridization of solar technologies for drying fish, Margarita Castillo Téllez, Beatriz Castillo Téllez, Alfredo Domínguez Niño, Gerardo Mejía Pérez, Juan E. Andrade Durán (Mexico)

No.	Title, authors and country
24	Standardised power values of some tested solar cookers following the linear regression of ASAE S580.1 Standard protocol and the linear regression associated with the Hottel-Whillier-Bliss formulation Celestino Rodrigues Ruivo, Antonio Carrillo-Andrés, Xabier Apalolaza-Pagoaga (Portugal, Spain)
25	From small SK14 parabolic solar concentrator to 500 m2 dual axis dish solar concentrator, Deepak Gadhia (India)
26	Are stainless steel pots suitable for solar cooking?, Daniel Feuermann (Israel)
27	Assessment for solar e-cooking at the productive use in rural african markets using standalone solar (PURAMS) project, Simões T., Banda S., Wacera A. , Chepkorir S.B. , Oribo N. , Cardoso J.P. , Costa P.A. , Couto A., Facão J., Loureiro D., Rodrigues C. (Portugal, Kenya)
28	Solar cookers, between the eagerness to cook and the need to disseminate, Pedro Serrano Rodríguez (Chile)
29	Dehydrated fish waste for biofertilizers, Castillo-Téllez, Beatriz, Castillo Téllez Margarita, Mejía-Pérez Gerardo Alberto, Martin del Campo Martha Fabiola, Domínguez Niño Alfredo, Vega-Gómez Carlos Jesahel (Mexico)
30	Heat storage for cooking: a summary of experiences with direct and indirect solar energy concepts, Ole Jorgen Nydal (Norway)
31	Establishing and Running a Solar Café, Sumitabh Tiwari, Amogh Sahaje (India)
32	Self-construction of a parabolic solar cooker by concentration as a technological transfer of community scope, made with recycled and revaluated materials, Luis Humberto Seguel Ramírez (Chile)
33	Reflections on of one hundred solar cooks from four continents, Luther Krueger (USA)
34	Experimental performance of a finned solar cooking storage pot, Ashmore Mawire, Prince Owusu, Katlego Lentswe (South Africa)
35	Aerotherm solar, solar thermal collector for the generation of hot air for drying food, using a cooperative model of working recycling and technological revaluation, Luis Humberto Seguel Ramírez (Chile)
36	Optical ray-tracing analysis of geometrical variations of a funnel solar cooker, Carrillo-Andrés, A., Apaolaza-Pagoaga, X., Rodrigues Ruivo, C. (Spain, Portugal)
37	Experimental method to investigate the of influence of solar altitude on the performance solar cookers Apaolaza-Pagoaga, X, Carrillo-Andrés, A., Rodrigues Ruivo, C. (Spain, Portugal)
38	A new funnel solar cooker design: Funnel Cooker 041, Macías-Fuentes, F.J., Carrillo-Andrés, A., Apaolaza-Pagoaga, X., Rodrigues Ruivo, C. (Spain, Portugal)
39	Technical-economical analysis of the thermosolar plant drying different agricultural products, O. García-Valladares, A.L. César Munguía, A. Domínguez Niño, J.R. Pérez Espinosa (Mexico)
40	Thermal evaluation of a mixed tunnel type solar dehydrator under different operating conditions, O. García-Valladares, D. Hernández Tamayo, J.R. Pérez Espinosa (Mexico)
41	Solar cooking: technical challenges and solutions, Kumar Sandeep, Kuldeep Pawan, Mahavar Sunita (India)
42	Direct solar oven: sustainable for taste and health, A. Varesano, D. Tofani, T. Gasperi, S.S. Moeini, E. Mattoni (Italy)
43	Solar cooking as a higher education gateway towards global engagement, responsibility, and repair, Riad Bahhur, Tom Cappelletti, Mary Buchenic, Jennifer Gasser, Stefan Karneback, Sharon Clausson, Craig Bergland, Luther Kreuger (USA)

44	Design and experimental characterization of foldable solar cooker with trapezium cooking chamber and adjustable reflectors, Tariku Demissie, Celestino Rodrigues Ruivo, Claudia Paciarotti, Matteo Muccioli, Sebastiano Tomassetti, Gianluca Coccia, Giovanni Di Nicola (Italy, Portugal)
45	Performance comparison and experimental validation of four prototypes of panel solar cooker at high temperature, Alessia Aquilanti, Sebastiano Tomassetti, Gianluca Coccia, Matteo Muccioli, Luigi Terra, Elena Dezi, Giovanni Di Nicola (Italy)
46	Low cost intelligent vegetable dehydration with optimization of solar thermal and photovoltaic energy , J. Garcia, J. Pássaro, L. Coelho (Portugal)
47	Upgradation of khoa production method in Manchar, India using solar thermal system, Swanand Tadlimbekar (Germany)
48	The solar cooking ambassador program in Oaxaca, Mexico: 5-year evaluation, S. Lyman, L. Harp-Iturribarria (USA, Mexico)
49	Photovoltaic direct (no battery) cooking, Larry Schlussler (USA)
50	Community solar cooker using linear Fresnel collector, Antonio Famiglietti, Antonio Lecuona (Spain)
51	Numerical and experimental investigation of latent heat storage system for indirect solar cooking application, Mekonen Yalelet G. (Ethiopia)