

CONSOLFOOD2020

Third International Conference: Advances in Solar Thermal Food Processing

We invite you to join us at CONSOLFOOD2020.

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.

CONSOLFOOD 2020 is being planned for 22nd, 23rd and 24th January, 2020 at *Instituto Superior de Engenharia, Universidade do Algarve, Campus da Penha, 8005-139 Faro-Portugal*. Once again, we will focus on advances in solar cooking, solar food processing, and related topics. List of accepted abstracts is presented below.

The conference fee is 150 euros. It includes the cost of lunches and tea/coffee breaks.

Additional information:

Department of Mechanical Engineering, Institute of Engineering, University of the Algarve

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Faro international airport has good connections to other European airports. International airports at Lisbon, Oporto and Seville could also be considered as suitable options for participants wishing to visit those cities before or after the conference.

The city of Faro has hotel rooms at reduced rates in January. A list of suggested hotels with special discounts for conference participants will be uploaded at conference website.

PLEASE NOTE: Conference Venue: University of Algarve - **Campus da Penha**, located **IN** the city of Faro. (**NOT** Campus de Gambelas, which is located **OUTSIDE** the city of Faro towards the airport).

For updated information on CONSOLFOOD2020 go to www.consolfood.org

22-23-24

January 2020

INSTITUTE OF ENGINEERING
UNIVERSITY OF ALGARVE
CAMPUS DA PENHA
FARO-PORTUGAL

Third International Conference

CONSOLFOOD2020

>Advances in Solar

>Thermal Food Processing



Advisory and scientific committee

Jannika Bailey	Argentina
Noelia Quiroga	Argentina
Noelia Crespo Calatayud	Bolivia
Diego Coriolano	Brazil
Paulo Mário Machado Araújo	Brazil
Shyam Nandwani	Costa Rica
Pedro Serrano	Chile
Hongfei Zheng	China
Yanjun Dai	China
Jean-Jacques Serra	France
Pierre Aubert	France
Jürgen Kleinwächter	Germany
Alzubair Saiyed	India
Anagha Pathak	India
Chetan Singh Solanki	India
Manoj Soni	India
Daniel Feuermann	Israel
Giovanni di Nicola	Italy
Ivan D. Yaholnitsky	Lesotho
Beatriz Castillo Téllez	Mexico
Eduardo A. Rincón Mejía	Mexico
Margarita Castillo Téllez	Mexico
Ali Hajji	Morocco
Sanu Kaji Shrestha	Nepal
Juan José Milón Guzmán	Peru
Miguel Hadzich	Peru
António Eduardo B. Leitão	Portugal
Celestino Ruivo (Chairmann)	Portugal
Célia Quintas	Portugal
Cristina Luísa Silva	Portugal
João Nuno Miranda Garcia	Portugal
Margarida Moldão	Portugal
Raquel P. F. Guiné	Portugal
Rui Mariano Sousa da Cruz	Portugal
Antonio Carrillo	Spain
Antonio Lecuona Neumann	Spain
Francisco J. Macias Fuentes	Spain
Michael Götz	Switzerland
Stewart MacLachlan	UK
Alan Bigelow	USA
Sharon Clausson	USA

Organizing committee:

**Celestino Ruivo, (Chairman) ,
Institute of Engineering, University of Algarve, Portugal
Association for the Development of Industrial Aerodynamics, Portugal**

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

Ajay Chandak, PRINCE Suman Foundation, India

Dave Oxford, SLICK Solar Stove, UK

Juan Bello Llorente, Centro Integrado de FP Someso. A Coruña, Spain

Michael Bonke – LAZOLA Initiative for Spreading Solar Cooking, Germany

Alberto Hernandez Neto, University of Sao Paulo, Brazil

Solar cooking team (provisional):

**Celestino Ruivo (Portugal)
Juan Bello Llorente (Spain)
Francisco Javier Macías Fuentes (Spain)
Raghav Sharad Deosthale (India)
Shankar Kewat (India)**

Note: Solar cooker users, designers, and enthusiasts are encouraged to bring their solar cookers and ingredients, and cook at Campus da Penha. Please contact the organizing committee for more details.

Provisional time table

22nd January 2020
14:00 - 18:45

23rd January 2020
09:00 - 18:45

24th January 2020
09:00 - 18:00

List of accepted works to be presented in CONSOLFOD2020

2	BOX COOKER GLAZINGS: SLOPED OR HORIZONTAL? A STUDY OF THE OPTICAL EFFICIENCY	Daniel Feuermann	Israel
4	EXPERIMENTAL TESTING OF A SOLAR BOX COOKER WITH THERMAL ENERGY STORAGE BASED ON XYLITOL	Giovanni Di Nicola	Italy
		Gianluca Coccia	
		Sebastiano Tomassetti	
		Mariano Pierantozzi	
6	Intilanga: The Human-Centred Design of an off-grid food processing system for micro-enterprises within Johannesburg.	<u>Antonio Marin-Pacheco</u>	South Africa
7	Overcoming hurdles to solar cooking by designing for diversity of cooking standards	Stefan Karneböck	Sweden
		Sara Hjalmarsson	
8	ANALYSIS OF THE THERMAL BEHAVIOR OF A TUNNEL-TYPE DRYER WITH HYBRIDIZATION OF SOLAR TECHNOLOGIES	Margarita Castillo Téllez	México
		Beatríz Castillo Téllez	
		José Andrés Alanís Navarro	
		Juan Carlos Ovando Sierra	
9	EXPERIMENTAL PLATFORM OF SOLAR COOKERS AND OVENS AT THE TECHNICAL HEADQUARTERS UTFSM.	Pedro Serrano Rodríguez	Chile
10	SOLAR COOKERS AS COMPLEMENT IN TRADITIONAL RESTAURANTS	Pedro Serrano Rodríguez	Chile
11	SOLAR OVENS IN THE SOLAR FESTIVAL OF LISBON	Sara Freitas	Portugal
		Maria Rodrigues	
12	SOLAR COOKERS INTERNATIONAL ENHANCES THE GLOBAL SOLAR COOKING MOVEMENT THROUGH ADVOCACY, RESEARCH, AND STRENGTHENING CAPACITY	Caitlyn Hughes	USA
		Alan W. Bigelow	
		Mindy Fox	
13	SHARING THE RESOURCES OF SOLAR COOKERS INTERNATIONAL TO STRENGTHEN THE GLOBAL SOLAR COOKING MOVEMENT	Caitlyn Hughes	USA
		Alan W. Bigelow	
		Mindy Fox	
15	THIS STUDY SEEKS TO GIVE ANSWERS TO THE ENDURING QUESTION ABOUT WHICH INTERIOR COLOR AND INSULATION MATERIAL IS MOST EFFICIENT IN HEATING FOOD IN A SOLAR BOX COOKER	Sharon Clausson	USA
		Glenn Clausson	

16	MODELING AND DEVELOPMENT OF A SOLAR POWERED DATES DRYER	Talal Y. AL-Shikaili	Sultanate of Oman
		Fatma S. Al-Kindi	
		Pankaj P. Pathare	
		Farooq K. Al-Jahwari	
		Nasser A. Al-Azri	
17	DESIGN AND DEVELOPMENT OF SOLAR THERMAL-PHOTOVOLTAIC HYBRID COOKING SYSTEM	V. M. Modi	India
		Vinit Modi	
		Rajput Jayesh	
		Vijay Parmar	
18	Assessment of different combinations of meteorological parameters for predicting monthly average daily global solar radiation using artificial neural networks	Youness El Mghouchi	Morroco
19	PANELBOLIC – AN HYBRID DIY PROJECT OF PANEL AND PARABOLIC SOLAR COOKER	Elmo Souza Dutra da Silveira Filho	Brazil
20	A THREE-DOLLARS CARDBOARD PANEL SOLAR COOKER FOR LOW INCOME COMMUNITIES	Elmo Souza Dutra da Silveira Filho	Brazil
		Patrícia Lopes Barros de Araújo	
21	A Parabolic Solar Cooking Device Developed in Lesotho, Southern Africa.	Ivan D. Yaholnitsky	Lesotho
22	COOKING WITH STORED SOLAR ENERGY	Seggy T. Segaran	UK
23	SOLAR DRYING OF NOPAL (OPUNTIA FICUS-INDICA) USING DIRECT TECHNOLOGIES	Luis Humberto Huerta Medina	México
		Beatriz Castillo Téllez	
		Rachid Marzoug	
24	MATHEMATICAL MODELING OF NATIVE MAIZE DRYING	Beatriz Castillo Téllez	México
		Margarita Castillo Téllez	
		Martha Fabiola Martín del Campo Solis	
		María de los Ángeles Camacho Ruiz	
25	PROPOSED TEST STANDARD FOR SOLAR CONCENTRATING COOKERS	Ajay Chandak	India
		Deepak Dubey	
26	HIGH TEMPERATURE SOLAR COOKING SYSTEM WITH A PCM ENERGY STORAGE UNIT	Olivia Alves	Portugal
		V. A. F. Costa	
27	SUNPOD - AN ORAL HISTORY OF SOLAR COOKING	Michael Bonke	Germany

28	FIELD TRIAL TO DETERMINE THE CAPACITY OF A SINGLE PERSON TO MANUALLY MAINTAIN MULTIPLE FOCUSED BEAMS ON A SINGLE TARGET	Andrew Wilson	Australia
29	USING A HEAT TRAP, INSULATION AND HEAT SINKS TO ATTEMPT A PIZZA OVEN CHALLENGE WITH A 1.8m PARABOLIC REFLECTOR AT LATITUDE 32S	Andrew Wilson	Australia
30	SOLAR DRYING IN NIMAR REGION OF MADHYA PRADESH STATE OF INDIA- LEADING BY EXAMPLE.	Raghav S Deosthale	India
		Sharad Chandra Deosthale	
		Chinmay G Deshpande	
31	SOLABUNDANCE - AN AUTONOMOUS SMALL SOLAR POWER STATION FOR AROUND-THE-CLOCK COOKING, COOLING, HEATING AND ELECTRICITY	Jürgen Kleinwächter	Germany
32	FUNNEL SOLAR COOKER	Chauhan Bhargavsinh	Singapore
		Desai Nikunj Kumar M	India
33	RAYTRACING OPTICAL ANALYSIS OF A SOLAR FUNNEL COOKER	A. Carrillo-Andrés	Spain
		E. Rodríguez-García	
		X. Apaolaza-Pagoaga	
		J.M. Cejudo-López	
34	THERMO-OPTICAL PERFORMANCE OF A SOLAR FUNNEL COOKER	A. Carrillo-Andrés	Spain
		X. Apaolaza-Pagoaga	
		F. Serrano-Casares	
		F. Domínguez-Muñoz	
35	HYBRID SOLAR OVEN – LIMITED OR LIMITLESS	David Chalker	USA
36	PASSIVE SOLAR COLLECTOR FOR INDIRECT SMALL-SCALE DRYER	Antonio Lecuona-Neumann	Spain
		E. Improta	
		S. López-Larroque	
		A. D. Vega-Palenzuela	
37	PHOTOVOLTAIC SOLAR COOKER WITH NO BATTERIES USING ADVANCED ELECTRONICS	Antonio Lecuona-Neumann	Spain
		E. García-Arés	
		A. M. Lallana-Pena	

38	DESIGN, CONSTRUCTION AND COMPARISON OF SOLAR VACUUM DRYER AND CONVENTIONAL SOLAR CABINET TYPE DRYER	Raúl Quiroz Martínez	México
		Joel A. Salazar Pérez	
		Félix J. Reyes Vázquez	
		Juan C. Gutiérrez Villegas	
		Beatriz Castillo Téllez	
39	EVALUATION OF SOLAR TECHNOLOGIES FOR THE DEHYDRATED OF OREGANO (<i>Plectranthus amboinicus</i>) AND TOTAL PHENOLS CONTENT	Omar Sarracino Martínez	México
		Erika Viviana Miranda Mandujano	
		Damianys Almenares López	
		Erik Ramírez Morales	
		Margarita Castillo Tellez	
40	INFLUENCE OF SOLAR PROCESSING ON BROCCOLI (<i>Brassica oleracea</i> L. ssp. <i>Italica</i>) FLORETS PROPERTIES	Giorgia Carrieri	Italy
		Carlotta Gilli	Italy
		Bárbara Ramos	Portugal
		Cristina L.M. Silva	Portugal
41	PREDICTION OF SOLAR COOKING DYNAMIC CONDITIONS EFFECTS ON DIFFERENT VEGETABLES QUALITY PARAMETERS	Carlotta Gilli	Italy
		Giorgia Carrieri	Italy
		Bárbara Ramos	Portugal
		Cristina L.M. Silva	Portugal
42	BROCCOLI WASTE VALORISATION THROUGH SOLAR ENERGY	Miriam Talia	Italy
		Carlotta Gilli	Italy
		Bárbara Ramos	Portugal
		Cristina L.M. Silva	Portugal
43	LESSONS LEARNED FROM APPLIED SOLAR COOKING IN COMMUNITY TAMERA/PORTUGAL	Franziska Klapper	Portugal
		Hannah Larndorfer	
		Katrin Münch	
44	IMPLEMENTATION OF A SOLAR COMMUNITY RESTAURANT IN AN INSULAR TERRITORY USING THE PRINCIPLES OF SOCIAL TECHNOLOGY	Paulo Franklin Tavares Santos	Brazil
		Paulo Mário Machado Araújo	
45	AT YOUR CONVENIENCE: WHICH SOLAR COOKERS ARE MOST CONVENIENT?	Stewart Maclachlan	UK
		Dave Oxford	
46	SPREADING THE SOLAR COOKING VIRUS: SOME ATTEMPTS TO RAISE AWARENESS IN THE UK.	Dave Oxford	UK
		Stewart Maclachlan	