



European Association of Thermology



Physical Activity and Sports Faculty (INEF). U.P.M.

# 13<sup>th</sup> Congress of the European Association of Thermology

## Thermology in Medicine: Clinical Thermometry and Thermal imaging

Madrid 3-5 September 2015

---

### VENUE

Facultad de Ciencias de la Actividad Física y del Deporte - INEF  
Ciudad Universitaria de Madrid, C/ Martín Fierro, 7. 28040 Madrid

### COMMITTEES

Prof Dr Manuel Sillero-Quintana (Spain) - Congress Chairman

#### ORGANIZING COMMITTEE

Prof. Dr. Kurt Ammer (Austria)  
Dr. Kevin Howell (United Kingdom)  
Prof. Dr. Anna Jung (Poland)  
Prof. Dr. James Mercer (Norway)  
Prof. Dr. Francis Ring (United Kingdom)  
Dr. Ricardo Vardasca (Portugal)

#### LOCAL ORGANIZER COMMITTEE

Mr. Javier Arnaiz (Spain)  
Prof. Dr. Pedro J. Benito (Spain)  
Prof. Dr. Joao Carlos Bouzas (Brazil)  
Prof. Dr. Javier Calderón (Spain)  
Dr. Ismael Fernández-Cuevas (Spain)  
Prof. Dr. Ignacio Refoyo Román (Spain)  
Dr. Pedro M. Gómez (Spain)  
Mr. Sergio Piñonosa (Spain)  
Prof. Dr. Antonio Rivero (Spain)

#### EAT SCIENTIFIC BOARD

Prof. Dr. Kurt Ammer (Austria)  
Dr. Ricardo Vardasca (Portugal)  
Dr. Marcos Leal Brioschi (Brazil)  
Dr. Timothy Conwell (United States of America)  
Dr. Ismael Fernández-Cuevas (Spain)  
Prof. Dr. Joaquim Gabriel (Portugal)  
Dr. Kevin Howell (United Kingdom)  
Prof. Dr. Anna Jung (Poland)  
Prof. Dr. Arcangelo Merla (Italy)  
Prof. James Mercer (Norway)  
Prof. Dr. David Pascoe (United States of America)  
Prof. Dr. Adriana Nica (Romania)  
Prof. Dr. Francis Ring (United Kingdom)  
Prof Dr. Hisashi Usuki (Japan)

## SCIENTIFIC PROGRAMME

	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00
<b>Wednesday</b> 2-9-15	Pre-Congress Course													
	Late Registration and Accreditation at the Hotel Florida Norte													
<b>Thursday</b> 3-9-15	Late Registration and Accreditation at INEF	OPENING Ceremony + Session 1-1 Technical Applications	Coffee Break	Poster 1	Session 1-2 Biomedical Applications	LUNCH (Cafeteria INEF)	Session 1-3 Animal	Session 1-4 Biomedical	Coffee B.	Session 1-5 Biomedical Applications	EAT General Assembly			
<b>Friday</b> 4-9-15		Invited Session 2-1 Biomedical Applications		Poster 2	Session 2-2 Biomedical Applications		VISIT TO A PINTORESQUE CITY AND GALA DINNER (*) Departure: 15:30 (Florida Norte Hotel) Arrival: 23:00 approx.							
<b>Saturday</b> 5-9-15		Invited Session 3-1 Biomedical Applications		Poster 3	Session 3-2 Biomedical Applications		Closing Ceremony and EAT Awards							

Thursday, 3<sup>rd</sup> of September, 2015

### 9.00 Opening

A. Rivero (Dean of INEF): "Greeting address on behalf of INEF Madrid" (Spain)

9:00 J. Mercer: "Greeting address on behalf of EAT" (Norway)

M. Sillero: "Greeting address on behalf of the organization (Spain)

### 9:15 Session 1.1. Technical Applications: Hardware and software solutions for IR imaging

9:15 S1-1-1 R. Vardasca, J. Gabriel. "From thermal radiation at skin surface to image temperature values" (Portugal)

09:30 S1-1-2 B. Kluwe, P. Plassmann. "Mobile Medical Infrared Imaging Devices on Embedded Computing Platforms" (UK)

9:45 S1-1-3 G. Chernov, V. Chernov, C. Davila-Peralta, R. Rodriguez-Carvajal, M Barboza Flores. "3D infrared thermography system for biomedical applications" (Mexico)

10:00 S1-1-4 S. Sanchez-Carballido, M. Salas, A. De Castro, F. López. "Cutaneous medical analysis through active thermography supported on a thermal model of the skin. (Spain)

10:15 S1-1-5 A. Merla, D Cardone, P.Pinti, L Di Donato. "IRI – ImagePro©: A software tool for advanced processing of thermal IR imaging data". (Italy)

### 10:40 Coffe Break

**11:10 Poster Session 1. Miscellaneous animal and biomedical applications**

- P1-1 C. Ferraz, J. Moreira da Silva, L. Mendes “Assessment of stress recovery by thermography” (Portugal)
- P1-2 M. Kobayashi. “The effectiveness of thermography as an assessment tool for flap engraftment in a dog” (Japan)
- P1-3 S. Nica, L. Meiu, B. Mitoiu, M. Moise. “Case report-Thermographic evaluation of a patient with lymphedema of the upper limb, after mastectomy”. (Romania)
- P1-4 P. Rodrigues de Andrade, I. V. Vanessa Evangelista Maia, J. Almeida Ferreira, C. Franco de Medeiros Neto. “Absence of alterations in cutaneous temperature during the phases of menstrual cycle”. (Brazil)
- P1-5 O. Horie, H. Shibata, C. Okamoto, M. Natsuaki, M. Shibata. “Assessment of fever for infection control using thermography facial thermography in patients with fever”. (Japan)
- P1-6 L. Laino, A. Di Carlo “Possible application of telethermography in the non invasive study of the “Canceration Field”. (Italy)
- P1-7 R. Torres-Peralta, F. Cirett-Galán, V. Chernov, G. Chernov, J. L. Ruiz-Duarte, M. Barboza-Flores. “Error detection and correction in thermographic images for time series analysis in dynamic infrared imaging”. (Mexico)
- P1-8 J. L. Ruiz-Duarte, V. Chernov, G. Chernov, R. Torres-Peralta, F. Cirett-Galan, Martín-Del-Campo-Mena, M. Barboza-Flores. “A thermal asymmetry criterion for estimation of abnormality of breast infrared thermograms”. (Mexico)
- P1-9 E. Mota Silva, D. Casal, I. Iria, A. Farinho, S. Marques, E. Rodrigues, C. Pen, L. Mascarenhas Lemos, M. Angélica Almeida, D. Pais, J. Goyri O’Neill, V. Vassilenko ”Evaluation of the efficacy of IR Thermography in assessing peripheral nerve regeneration in a rat model”

**12:00 Session 1.2. Biomedical Applications Thermography in Surgery**

- 12:00 S1-2-1 M. Leal Brioschi, E. Borba Neves, V. Machado Reis, G. Galindo Reiseumberger. “Estimating the normal breast reference temperature in young women: a thermographic equation” (Brazil)
- 12:15 S1-2-2 B. Rustecki, M. Mozański, J. Klimkiewicz, W. Machura, B. Kalicki, A. Jung. “Evaluation of paravertebral block for mastectomy by infrared imaging”. (Poland)
- 12:30 S1-2-3 J. Mercer, T. Sjøberg, L. de Weerd. “Pre-, intra- and postoperative use of dynamic infrared thermography (DIRT) in breast reconstruction using a fascio-cutaneous pedicled perforator flap”. (Norway)
- 12:45 S1-2-4 C. Di Maria, P. Hainsworth, J. Allen. “Microvascular imaging for the intra-operative evaluation of bowel perfusion”. (UK)
- 13:00 S1-2-5 C. Vicari Nogueira, C. De Barros Fernandez, M. Brioschi, J. Pere Barret. “Infrared Thermography in Plastic Surgery: A Comparative Study of Pre and Postoperative in different techniques of Abdominoplasty”. (Brazil/Spain)
- 13:15 S1-2-6 A. Urakov, N. Urakova. “Thermography provides information on the oxygenation of the fetal brain in the final stage of childbirth”. (Russia)

**13.30 LUNCH (Cafeteria INEF)****14:30 Session 1.3. Animal Applications with a focus on equine medicine**

- 14:30 S1-3-1 M. Soroko, K. Howell. “Thermography in equine medicine”. (Poland/UK)
- 14:45 S1-3-2 K. Howell, M. Soroko, K. Dudek, E. Jodkowska. “Thermographic evaluation of racehorse performance” (Poland/UK)
- 15:00 S1-3-3 K. Howell, M. Soroko, K. Dudek. “Influence of breed, age, gender, training intensity level and ambient temperature on back and forelimb temperature in racehorses”. (Poland/UK)
- 15:15 S1-3-4 A. Hoffmann, C. Dumke, M. Bernau, P. Kremer. “Infrared thermography – new concepts for refinement and reduction in animal use for testing of biological”. (Germany)

## **Session 1.4. Biomedical Applications History and Future of Infrared Imaging**

- 15:30 K. Ammer. “Human Skin Temperature Measurement Based on Radiometry– A historical review”.  
S1-4-1 (Austria)
- 15:45 A. Jung. “Twenty years activity of The Centre for Clinical Thermology of The Military Institute of  
S1-4-2 Medicine in Warsaw, Poland”. (Poland)
- 16:00 M. Sillero-Quintana, J. Arnáiz-Lastras, I. Fernández-Cuevas, P. Gómez-Carmona. “Proposals to  
S1-4-3 standardize results in human thermography”. (Spain)
- 16:15 C. Chandler. “Why thermography?” (USA)  
S1-4-4

## **16:30 Coffee break**

## **17:00 Session 1.5. Biomedical Applications. Temperature measurement at the head or face**

- 17:00 C. Di Maria, J. Allen, J. Dickinson, C. Neoh. “Analysis of thermal images to quantify inflammation  
S1-5-1 in Graves’ orbitopathy”. (UK)
- 17:15 M. Sund-Levander, E. Grodzinsky. “Ear body temperature in healthy individuals . A population  
S1-5-2 study on small children to elderly adults”. (Sweden)
- 17:30 F. Ring, D. Pascoe, R. Vardasca. “Lack of compliance to International Standards Organisation  
S1-5-3 recommendations for Fever Screening with Thermography”. (UK/USA/Portugal)
- 17:45 F. Ring, R. Vardasca. “The development of an infrared thermography pandemic fever screening  
S1-5-4 course for the non-researcher/scientist operator”. (USA/UK/Portugal)
- 18:00 H. Usuki, B. Nishiura, Y. Wada, J. Uemura, S. Noge, N. Maeda, M. Nishimura, E. Asano,  
S1-5-5 M. Ohshima, N. Yamamoto, S. Akamoto, M. Fujiwara, K. Okano, Y. Suzuki. “Thermographic  
examination for hypothermia in high altitude”. (Japan)
- 18:15 D. Cardone, A. Merla. “The thermal dimension of social interactions”. (Italy)  
S1-5-6
- 18:30 E. Salazar-Lopez, E. G. Milán. “The mental and subjective skin: thermography applied to  
S1-5-7 psychology”. (Spain)

## **19:00 EAT General Assembly**

Friday, 4<sup>th</sup> of September, 2015

---

### 9:00 Invited lecture. Blood flow in diabetes.

P.R.J. Vas. "Skin perfusion and diabetes". (UK)

### 9:30 Session 2.1. Biomedical Applications: Foot temperature

- 9:30 S2-1-1 J. Klaessens, A. van der Veen, R. Verdaasdonk. "Thermal Imaging, a clinical diagnostic tool for non-contact monitoring of tissue perfusion, applied in clinical trials". (The Netherlands)
- 9:45 S2-1-2 V. Veikutis, K. Stasiukynaitė, E. Monstavičius, A. Sakalauskaitė. "Plantar thermography as a diagnostic and prognostic tool for diabetic foot" (Lithuania)
- 10:00 S2-1-3 R. Vardasca, A. Marques, R. Carvalho, J. Gabriel. "Thermal Physiological Characterization of Diabetic Foot" (Portugal)
- 10:15 S2-1-4 J. Allen, C. Di Maria, K. Anderson. "Study of the thermovascular characteristics in patients with Willis-Ékbom disease" (UK)
- 10:30 S2-1-5 S. Melgosa. "Toe spacers to increase skin temperature". (Spain)
- 10:45 S2-1-6 J. Teixeira Oliveira, R. Vardasca, M. Pimenta, J. Torres. "Thermal imaging as a potential complementary diagnosis method for ankle sprain lesions" (Portugal)

### 11:00 Coffe Break

### 11:30 Poster Session 2. Facial temperature and applications in surgery.

- P2-1 D. Sabbagh Haddad, M. Leal Brioschi, R. Vardasca, E. Saito Arita. "Study of the facial surface skin thermal distribution by infrared thermography: facial thermoanatomy".(Brazil/Portugal)
- P2-2 A. Seixas, V. Häussler, Monteiro, R. Vardasca, J. Gabriel, S. Rodrigues. "Experimentally induced pain elicits autonomic arousal in healthy subjects". (Portugal)
- P2-3 C. De Barros Fernandez Nogueira, C. Vicari Nogueira, M. Brioschi, N. Maestro. "Case Report: Thermal Anatomic Aspects In Facial Palsy, And Use Of Thermography As A Healing Evaluation Method (Brazil/Portugal).
- P2-4 V. Bernard, T. Andrašina, V. Mornstein, E. Staffa, V. Válek. "Infrared thermography as a tool for monitoring of radiofrequency tissue ablation inside of metal stent". (Czech Republic)
- P2-5 E. Staffa, V. Bernard, L. Kubíèek, V. žižlavský; R. Vlachovský, D. Vlk, V .Mornstein, R. Staffa. "Thermal imaging to assess changes of foot skin temperature in patients treated with percutaneous transluminal angioplasty" (Czech Republic)

### Session 2.2. Biomedical Applications Temperature Changes after Cold Challenge

- 12:00 S2-2-1 A. Norheim, E. Borud, J. Mercer, L. de Weerd. "Normal" thermography among 122 soldiers in the Norwegian armed forces". (Norway)
- 12:15 S2-2-2 K. Howell, M. Adams, G. Hartnell, R. Smith. "Finger cooling during cold stress and surface area-to-volume ratio in healthy subjects, and patients with primary and secondary Raynaud's phenomenon". (UK)
- 12:30 S2-2-3 K. Leijon-Sundqvist, N. Lehto, U. Juntti, K. Karp. "Cold-water provocation of hands: an evaluation of different provocations". (Sweden)
- 12:45 S2-2-4 A. Urakov, M. Nasyrov, L. Chernova. "How fingers became warm after cooling". (Russia)
- 13:00 S2-2-5 T.D. Conwell, K.E. Lind. "Comparison of the Diagnostic Accuracy of Three Infrared Imaging Methods in Evaluating Patients with Presumptive CRPS". (USA)
- 13:15 S2-2-6 M. Clemente, R. Correia, D. Coimbra, R. Vardasca, J. Gabriel. "The contribution of medical thermal imaging in the study of Temporomandibular disorders (TMD) disorders in clarinet players". (Portugal)

### 13.30 LUNCH (Cafeteria INEF)

**9:00 Invited lecture.**

J. A. Sobrino “Infrared remote earth sensing and global climatic change.” (Spain)

**9:30 Session 3.1. Biomedical Applications: Thermography and physical exercise**

- 9:45  
S3-1-1 R. Vardasca, A. Seixas, J. Gabriel, J. Vilas-Boas. “Thermographic evaluation of swimming techniques”. (Portugal)
- 10:00  
S3-1-2 J. Adamczyk, D. Boguszewski, P. Reaburn, D. Bialoszewski. Is it possible to create a thermal model of warm-up? Monitoring the training process in athletic Decathlon. (Poland)
- 10:15  
S3-1-3 I. Fernández-Cuevas, L. Grams, J. Marins, M. Sillero-Quintana. “Skin temperatura differences between aerobic and anaerobic training”. (Spain/Germany/Brazil)
- 10:30  
S2-1-4 H. Rossas, S. Rodrigues, A. Seixas. “Skin temperature changes over the medial gastrocnemius and total work during exercise”. (Portugal)
- 10:45  
S2-1-5 A. Seixas, S. Rodrigues, V. Soares, T. Dias. “Changes in skin temperature and thermal symmetry induced by a physiotherapy occupational task”. (Portugal)

**11:00 Coffe Break****11:30 Poster Session 3. Evaluation of exercise or of disorders of the locomotor system**

- P3-1 H. Honorato dos Santos, Y. de Araújo Silva, B. Herculano dos Santos, J. de Almeida Ferreira. “Thermographic analysis of the anaerobic exercise post-recovery by cold water immersion”. (Brazil)
- P3-1 A. Seixas, V. Häussler, Monteiro; R. Vardasca, J. Gabriel, S. Rodrigues. “Skin temperatura is correlated with symptoms in patients with patellar tendinopathy”. (Portugal)
- P3-2 J. Alencar, M. Freire, R. Cardoso, J. Ferreira. “Thermographic changes in workers with shoulder disorders”, (Brazil)
- P3-4 J. de Almeida Ferreira, U. Franco de Oliveira, L. Caldas Araújo, B. Herculano dos Santos. “Thermographic profile of the hamstring muscles during static stretching” (Brazil)
- P3-5 J. de Almeida Ferreira, B. Herculano dos Santos, Y. de Araújo Silva, U. Franco de Oliveira. “Thermographic analysis of the effect of different modalities of exercise: Aerobic and eccentric exercise”. (Brazil)
- P3-6 C. De Barros Fernandez Nogueira, C. Vicari Nogueira, M. Brioschi, N. Ribeiro. “Case Studies – How Thermography Can Assist Clinical Examination In Various Stages Following Trauma.” (Portugal/Brazil)
- P3-7 J.I. Priego Quesada. “Core and Local Skin Temperatures During Aerobic Cycling Exercise” (Spain)

**12:15 Session 3.2. Biomedical Applications. Pain syndromes of the locomotor system**

- 12:15  
S3-2-1 D. Boguszewski, J. Adamczyk, A. Slupik, D. Bialoszewski. “Using thermovision in evaluation the effect of isometric and classical massage on selected physiological and biomechanical parameters of lower limbs”. (Poland)
- 12:30  
S3-2-2 J. Gabrhel, Z. Popracová, H. Tauchmannová, Z. Chvojka. “Painful leg syndrome in thermal, ultrasound and X-Ray imaging” (Slovakia).
- 12:45  
S3-2-3 M. Leal Brioschi, E. Borba Neves, V. Machado Reis, G. Galindo Reiserberger. “Thermographic evaluation of risk factors for hip pain”. (Brazil)
- 13:00  
S3-2-4 I. Rossignoli, M. Sillero-Quintana, A. Herrero. “Infrared thermography and shoulder pain in wheelchair users”. (Spain)
- 13:15  
S3-2-5 M. Leal Brioschi, E. Borba Neves, V. Machado Reis, G. Galindo Reiserberger. “Thermographic evaluation of lateral epicondylitis in patients with fibromyalgia syndrome”. (Brazil)

**13.30 LUNCH (Cafeteria INEF)****14.30 Closing Ceremony and EAT Awards**