CEEC-TAC5 & Medicta2019

# BOOK OF ABSTRACTS

**Editors:**
**Andrei Rotaru**
**Stefano Vecchio Ciprioti**


**5th Central and Eastern European Conference on Thermal Analysis and Calorimetry**
**&**
**14th Mediterranean Conference on Calorimetry and Thermal Analysis**

**27-30 August 2019**
**Roma, Italy**

**Book of abstracts of the 5th Central and Eastern European Conference on Thermal Analysis and Calorimetry (CEEC-TAC5) and 14th Mediterranean Conference on Calorimetry and Thermal Analysis (Medicta2019).**

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**The 5th Central and Eastern European Conference on Thermal Analysis and Calorimetry**
**&**
**The 14th Mediterranean Conference on Calorimetry and Thermal Analysis**

***CEEC-TAC5 & Medicta2019***

***27-30 August 2019 – Roma, Italy***

*is organized by the*:

**Central and Eastern European Committee for Thermal Analysis and Calorimetry (CEEC-TAC),**

**Italian Association for Calorimetry and Thermal Analysis (AICAT),**

**Interdivisional Group of Calorimetry and Thermal Analysis (GICAT) of the Italian Society of Chemistry,**

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# General Information

The joint event "5th Central and Eastern European Conference on Thermal Analysis and Calorimetry (CEEC-TAC5) & 14th Mediterranean Conference on Calorimetry and Thermal Analysis (Medicta2019)" has gathered **372 registered participants** from **38 countries** and of **6 continents**, presenting a total number of **451 scientific works**. Of those, 4 are Plenary Lectures (**PL**), 3 are Award Plenary Lectures (**APL**), 16 are Invited Lectures (**IL**), 4 Parallel Sessions of Oral Presentations – 108 contributions (**OP**) & 3 Sessions of Poster Presentation – 320 contributions (**PS**). Each session of oral presentations is comprised of 27 works, poster session 1 and 2 include 106 works each, while poster session 3 has 108 works.

An important task of CEEC-TAC5 & Medicta2019 is the continuation of 2 distinctive directions that the first conference follows, with 2 Workshops (**WS**) introducing the subjects:

1) *Advanced Functional Materials;*

2) *Kinetics and Lifetime Prediction of Materials (KLTPM)*.

## Plenary Lectures

- ***Kestutis Baltakys*** (Kaunas Univerity of Technology, Lithuania)
- ***Dimitrios N. Bikiaris*** (Aristotle University of Thessaloniki, Greece)
- ***Nobuyoshi Koga*** (Hiroshima University, Japan)
- ***Janos Kristof*** (University of Pannonia, Hungary)
- ***Vahur Oja*** (Tallinn University of Technology, Estonia)
- ***Crisan Popescu*** (KAO European Research Laboratory, Germany)
- ***Henrik Rudolph*** (Applied Surface Science, Elsevier, the Netherlands)

## Invited Lectures

- ***Arnon Chaipanich*** (Chiang Mai University, Thailand)
- ***Svetlana Danilova-Tretiak*** (A.V. Luikov Heat&Mass Transfer Institute, Belarus)
- ***Ahmed El-Sabbagh*** (Ain Shams University, Egypt)
- ***Nathanael Guigo*** (University of Cote d'Azur, France)
- ***Tiit Kaljuvee*** (Tallinn University of Technology, Estonia)
- ***Dana Luca Motoc*** (Transilvania University of Brasov, Romania)
- ***Cheila G. Mothe*** (Federal University of Rio de Janeiro, Brazil)
- ***Wojciech Marczak*** (Jan Dlugosz University in Czestochowa, Poland)
- ***Jonjaua Ranogajec*** (University of Novi Sad, Serbia)
- ***Iulian Riposan*** (University Politehnica of Bucharest, Romania)
- ***Adriana Saccone*** (University of Genoa, Italy)
- ***Pablo Taboada*** (University of Santiago de Compostela, Spain)
- ***Paul S. Thomas*** (University of Technology Sydney, Australia)
- ***Ranjit K. Verma*** (Patna University, India)
- ***Anna Vykydalova*** (Slovak University of Technology in Bratislava, Slovakia)
- ***Kseniya Zherikova*** (Nikolaev Institute of Inorganic Chemistry, Russian Federation)

# Characterization of weld metal in welded microalloyed steel J55 made using a rutile electrode with a flux-cored wire core

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The development and production of welding electrodes with enhanced properties represents complex research that requires changes in certain technological phases of making the core and coating [1-3]. Improving the properties of the electrodes by changing the properties of the steel core is possible by replacing solid wire with alloyed flux-cored wire.

The possibility of use of flux-cored wire for making the electrode core requires primarily that the thickness of the steel shell is sufficient to enable the preparation of the rod of a required diameter and length with straight ends, to which the coating can evenly be applied by continuous pressing.

This paper presents the results of tests of mechanical properties (yield strength, tensile strength and toughness) at various temperatures and microstructure of welded joints of microalloyed high strength (HSLA) steels J55 (according to API Spec 5L) implemented using new quality coated electrodes.

The mastered quality of the coated rutile electrode has a core of flux-cored wire alloyed with Ni and Mo. The main objective of this research is to define the justification of replacing the solid wire electrode core with flux-cored wire.

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