Biomaterials 2020

2nd Global Congress & Expo on Biomaterials

Theme: *Historical Development & Classification of Biomaterials*

Download Brochure

Meeting Agenda

Date : May 11-12,2020 Venue : DoubleTree by Hilton Hotel : Manchester, UK

SCIENTIFIC FEDERATION
ABODE FOR RESEARCHERS

2nd Global Congress & Expo on
Biomaterials
May 11-12, 2020 | Manchester, UK

Date: November 18, 2019.

Abstract Acceptance Letter

Mrs. Julia Claudia Mirza Rosca,
University of Las Palmas de Gran Canaria, Spain.
Greetings from Scientific Federation!

We cordially invite you to attend the annual **"2nd World Congress and Expo on Biomaterials"** to be held during May 11-12, 2020 at Manchester, UK. We welcome you to join us and share your knowledge and view on the theme **"Historical Development & Classification of Biomaterials"** We would like to inform you that your abstract has been accepted by the organizing committee. In this regard, on behalf of the Organizing Committee, we are welcoming you to join us and give **Poster Presentation** on ***"Titanium-Tantalum alloys with bioactive surface for orthopaedic implants"*** ***and "Biocompatibility of High Entropy Alloys: Science and Design".***

The **2nd Global Congress and Expo on Biomaterials** is being conducted at Manchester. **Historical Development & Classification of Biomaterials** is a scientific congregation which brings together researchers, scientists, key decision makers, and industry professionals in the same physical space for a brief yet intense period of discussion, collaboration, and addressing related problems in research. We believe this conference will be a highly rewarding educational and networking experience for all. Additionally, we encourage you to take this opportunity to explore the many facets of Manchester and to experience the unique UK culture.

We look forward to seeing you in Manchester, UK.
For more details about Biomaterials PS: https://scientificfederation.com/biomaterials-2020/index.php

With our best wishes,

Vijay Kumar, Scientific Committee Operator
Biomaterials Organizing Committee
Scientific Federation
4th Floor, Ozone Complex, Panjagutta
Hyderabad-500082
India

Note: This invitation is only to attend Biomaterials Conference which is during May 11-12, 2020 in Manchester, UK.

SCIFED WEBINAR

Webinar on Biomaterials

July 22-23, 2020

Day 1 July 22, 2020 CST (ASIA) GMT+8	
Starts @ Beijing Time Zone	
10:00-10:30	**Introduction**
Keynote Sessions	
10:30-11:00	**Title:** Development Process of Biopolymer Materials
	Liu Jiping, Beijing Institute of Technology, China
11:00-11:30	**Title:** Development of Organic Patch for Wound
	R. Sree Padmini, Sri Ramakrishna Engineering College, India
11:30-12:00	**Title:** Xyloglucan Based Mucosal Nanovaccine for Prevention of Brucellosis
	Vandana Bharat Patravale, Institute of Chemical Technology, India
12:00-12:15	**Sessions Break**
Invited Sessions	
12:15-12:40	**Title:** Natural Biomaterials for Biomedical Application
	V. Sugantha Kumari, Auxilium College, India
12:40-13:05	**Title:** Comparison of the Ability of Two Border Molding Materials in Recording the Functional Lateral Throat Form in Completely Edentulous Mandibular Arches and In Vivo Study
	Priyanka Tiwari, Sumandeep Vidhyapeeth University, India
13:05-13:50	**Sessions Break**
13:50-14:15	**Title:** Development of Biocompatible Natural Polymer as Next Generation Delivery System of Natural Therapeutics
	Kunal Pal, Jadavpur University, India
14:15-14:40	**Title: Will Confirm Soon**
	Francesco Guido Mangano,Sechenov First State Medical University of Moscow, Russia
15:40-16:05	**Title: Will Confirm Soon**
	Krzysztof Jastrzębski, Lodz University of Technology, Institute of Materials Science and Engineering, Poland
16:05-16:30	**Title: Will Confirm Soon**
	Mindaugas Viskontas, University of Aberdeen, UK
Few Slots Available	
Day 2 July 23, 2020 CEST (EUROPE) GMT+1	
Starts @ London Time Zone	
09:30-10:00	**Introduction**
Keynote Sessions	

10:00-10:35	**Title:** Biofabrication of Advanced Organotypic Tissues in Membrane Biohybrid Systems
	Simona Salerno, ITM-CNR, Italy
10:35-11:10	**Title:** Biocompatibility of High Entropy Alloys: Science and Design
	Julia Mirza Rosca, University of Las Palmas de Gran Canaria, Spain
11:10-11:25	**Sessions Break**
11:25-12:00	**Title:** An Approach of Based Design Optimization Study of Dental Implant with uncertain Parameters
	Abid Fatma, Univ. ArtoisULR4515 - LGCgE, France
12:00-12:30	**Title:** Titanium-Tantalum Alloys with Bioactive Surface for Orthopaedic Implants
	Julia Mirza Rosca, University of Las Palmas de Gran Canaria, Spain
12:30-13:00	**Title: Will Confirm Soon**
	Joaquín Rams Ramos, Rey Juan Carlos University, Spain
13:00-13:30	**Sessions Break**
13:30-13:55	**Title:** Microfluidic Technologies Come in Handy in Research on Material Synthesis, Isolation and Processing
	Abrishamkar Afshin, Swiss Federal Institute of Technology, Switzerland
13:55-14:20	**Title: Will Confirm Soon**
	Bacakova Lucie, Czech Academy of Sciences, Czech Republic
14:20-14:45	**Title: Will Confirm Soon**
	Atanasio Serafim Vidane, University of Sao Paulo, Brazil
14:45-15:10	**Title: Will Confirm Soon**
	Igor de Oliveira Roversi, Pontifical Catholic University of Sao Paulo, Brazil
15:10-15:35	**Title: Will Confirm Soon**
	Silvio Henrique de Freitas, University of Sao Paulo, Brazil
Keynote Talk	
15:35-16:10	**Title**:A Side-Effect Free Chemotherapy for Treating Cancer by Directed Gene Delivery and a Prodrug
	A. C. Matin, Stanford University School of Medicine, USA
16:10-16:45	**Title:** Half a Century and Billions of Dollars Later, Is the Charnley Hip Implant Still the Best We Have ?
	Thomas Webster, Northeastern University, USA
16:45-17:10	**Title:** Application of Titanium Additive Manufacturing for the Production of a Novel Dental Implant Abutment
	Les Kalman, The University of Western Ontario, Canada
Few Slots Available	

Titanium-Tantalum alloys with bioactive surface for orthopaedic implants

E.V. Lucero Baldevenites[1], J.C. Mirza Rosca[1], N.R. Florido Suárez[1],
P.P. Socorro Perdomo[1], A. Pascu[2], E. Stanciu[2]
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Campus Universitario Tafira, Edificio Ingeniería,
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[2]*Transilvania University of Brasov, Materials Engineering and Welding Department,*
29 Eroilor Blvd., 500036, Brasov, Romania

Achieving a stable bone-implant interface is an important factor in the long-term outcome of joint arthroplasty. It was demonstrated that the bone-bonding ability of a material could be evaluated by testing the materials in a simulated body fluid (SBF) and in these conditions, the capability of forming hydroxi-apatite on the surface of the material has been considered to indicate its bone-bonding potential.

The paper focus on the study of the bone-bonding capability of three new titanium alloys with 5%, 15% and 25%Ta which were soaked in 10M aqueous NaOH solution then were immersed in a simulated body fluid (SBF). The materials were studied before and after the immersion by optical metallography, microhardness, open circuit potential and electrochemical impedance spectroscopy.

The methallographical aspects of the samples surfaces after alkali-treatment and before immersion in SBF demonstrated the presence of two phases: one soft and one hard. The same results were obtained by microhardness surface scanning. The open circuit potential shows a good stability of the alloys in SBF.

Analysis of the impedance spectra was done using the Boukamp nonlinear least square fitting procedure. The EIS spectra exhibited two-time constant system suggesting the formation of a two-layer oxide film on the alloys surface, i.e. a porous outer oxide and a barrier inner oxide.

It is therefore expected that the new Ti-Ta alloys subjected to this appropriate treatment could form an apatite layer via TiO_2 gel formation on their surface in the body's environment, and bond to living bone through the apatite layer.

Keywords: Ti-Ta; Metal alloys; Metallographic characterization, Microhardness, Orthopaedic; Open circuit potential; Biocompatibility; Simulated body fluid

UNIVERSIDAD DE LAS PALMAS DE GRAN CANARIA

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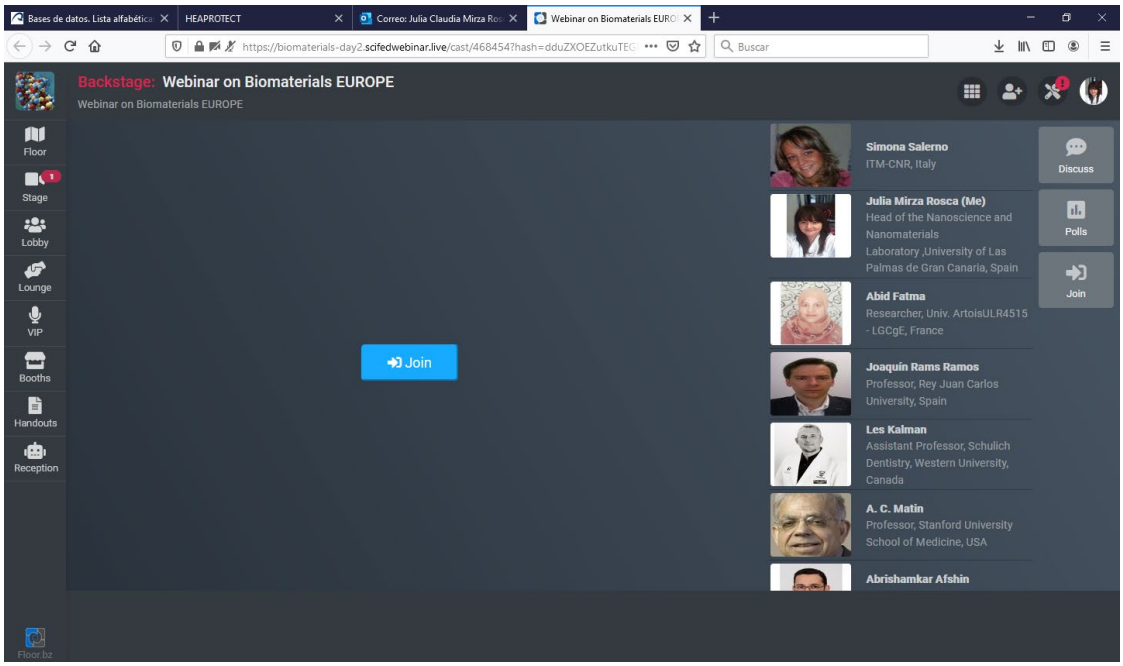
Biomaterials 2020



Webinar on Biomaterials EUROPE

Session

Details

The Biomaterials and Applications Webinar (BioApp-2020) is the only 100% inclusive, 100% virtual event designed for the international biomaterials community to share the latest techniques, best practices and to grow your network. At BioApp-2020, attendees can network directly with each other and exhibitors. Our goal is to bring together thought leaders and best infrastructure resources available so attendees can build their own resource networks. Our virtual event operates exactly like a traditional conference with keynote speakers in a dedicated theater, breakout rooms, an exhibitor hall, networking rooms, breakout tracks, scheduled demos in our exhibit hall, and education resources.

Speakers


Simona Salerno


Julia Mirza Rosca


Abid Fatma


Joaquín Rams Ramos


Les Kalman


A. C. Matin


Abrishamkar Afshin


Bacakova Lucie


Thomas Webster

Saidulu


R. Sree Padmini


V. Sugantha Kumari

On

23 July 2020

Timings

09:30 AM - 06:00 PM

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TITANIUM-TANTALUM ALLOYS WITH BIOACTIVE SURFACE FOR ORTHOPAEDIC IMPLANTS

E.V. Lucero Baldevenites[1], J.C. Mirza Rosca[1], N.R. Florido Suárez[1], P.P. Socorro Perdomo[1], A. Pascu[2], E. Stanciu[2]

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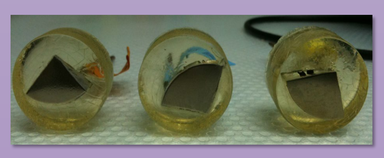
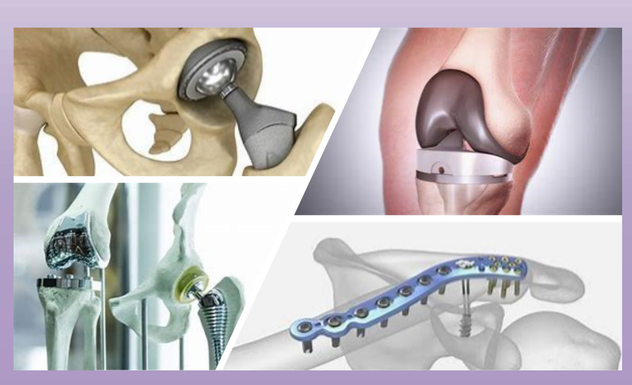
[2]Transilvania University of Brasov, Materials Engineering and Welding Department, 29 Eroilor Blvd., 500036, Brasov, Romania

MATERIALS

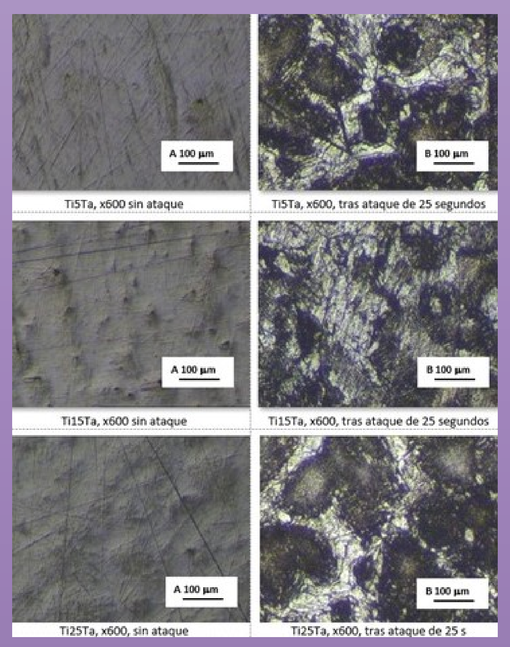


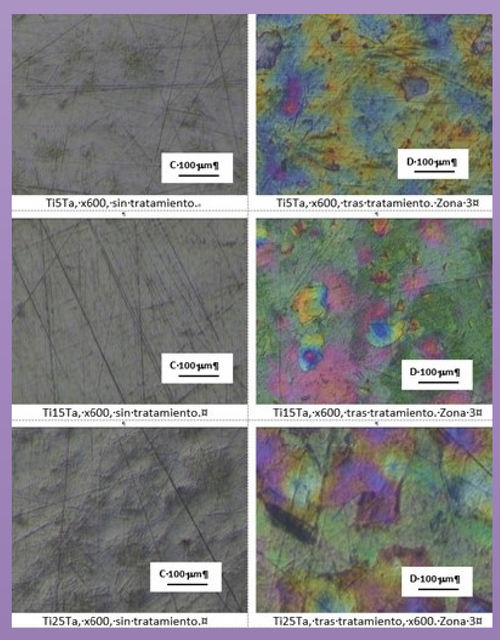
Alloy	Components	Composition by weight (wh%)	
		Weighted	Measured
Ti5Ta	Ti	95,0	95,0
	Ta	5,0	5,0
Ti15Ta	Ti	85,0	84,8
	Ta	15,0	15,2
Ti25Ta	Ti	75,0	74,6
	Ta	25,0	25,4



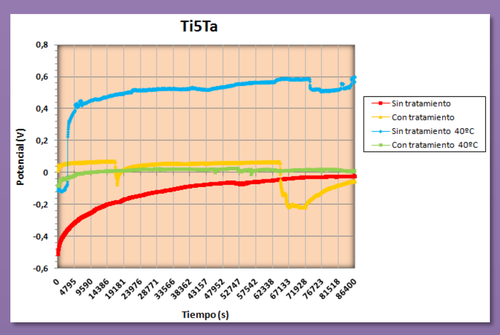
METHODS

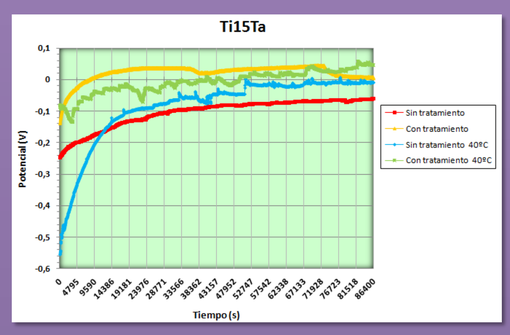
METALLOGRAPHIC ANALYSIS

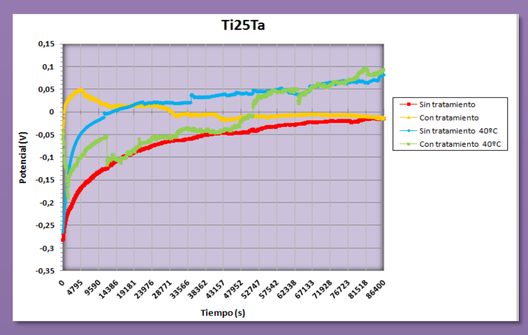




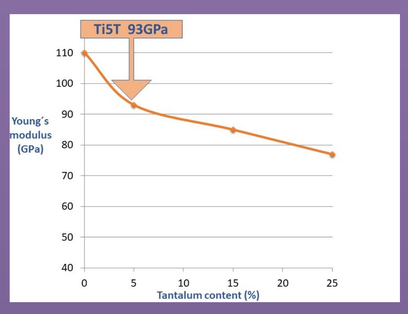
OPEN CIRCUIT POTENTIAL

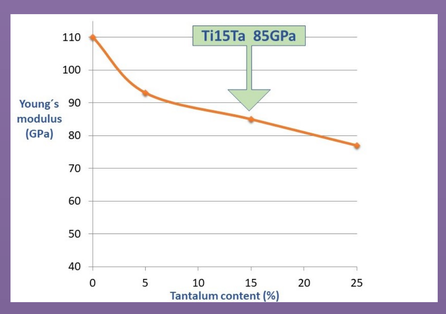


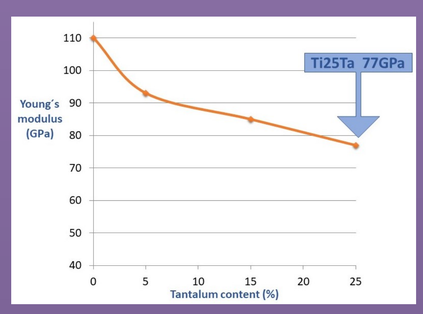




THREE POINT BENDING TEST

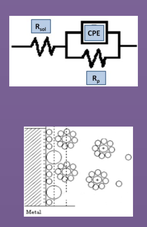


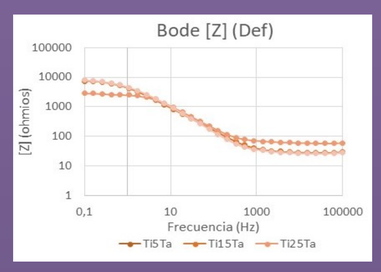


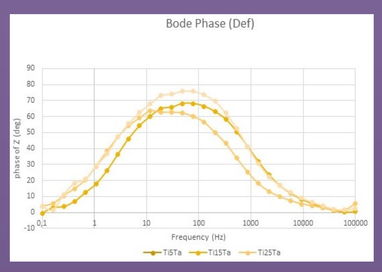


ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY

Alloy	Potential [V]	R_{sol} [Ω.cm²]	Yo_1 [F/cm²]	n_1 [0<n<1]	R_p [Ω.cm²]	Error
Ti-25%Ta	-0,4	38,47	0,000141	0,856	1,4320	1,68E-3
	-0,3	38,38	0,0001347	0,8564	19830	1,24E-3
	-0,2	38,26	0,0001113	0,8667	19270	2,51E-3
	-0,1	38,24	0,0001064	0,8713	19210	2,85E-3
	0	38,33	9,252E-5	0,8861	14530	1,84E-3
	0,1	38,71	7,763E-5	0,9097	9817	9,00E-4
	0,2	38,75	7,117E-5	0,9174	9622	8,59E-4
	0,3	38,77	6,749E-5	0,9197	9959	9,02E-4
	0,4	38,77	6,676E-5	0,9171	10440	9,16E-4
	0,6	39,57	5,829E-5	0,9233	8071	1,13E-3
	0,8	39,47	5,041E-5	0,915	8850	1,42E-3
	1,0	39,25	4,701E-5	0,9051	9090	1,13E-3
	1,2	39,15	4,298E-5	0,9025	7115	1,10E-3







According to microstructure tests result, two crystal structures were observed, a hard one and a soft one. An increase of tantalum content has an effect on increasing material hardness.

Young´s modulus and mechanical properties of TiTa alloys greatly depend on tantalum content, resulting in much lower Young´s modulus than pure titanium.

The open circuit potential of the TiTa alloys stabilizes at a value after a certain period of inmersion in the Ringer´s solution. This phenomenon is due to the rapid formation of the TiO_2 and Ta_2O_5 passive layer and its stabilization.

EIS was used to investigate the corrosion resistance of TiTa alloys, all alloys presented a capacitive behavior, typical of passive systems. Corrosion resistance best results were obtained by the TiTa alloy with the highest tantalum content.

TiTa alloys studied have excellent biocompatibility and corrosion resistant which suggest great possibilities in biomechanical applications.