

**1<sup>st</sup> International Conference on**  
**Coatings, Thin Films, Multi Layer Devices & Systems**

**December 14<sup>th</sup> - 16<sup>th</sup>, 2016**



**Venue**

**Nonferrous Materials Technology Development Centre**  
**P.O.Kanchanbagh, Hyderabad – 500 058, INDIA**

## Theme

Materials organized in multiple layers via innovative processes have been the hallmark of advances in materials to devices and systems paradigm. Single layer applications still perform as work horses in metallurgical coatings primarily for protection against corrosion, wear and oxidation wherein the substrate is the main functional part and the engineered surfaces are for enhancing its performance and life extension. At the other end of spectrum are the multi-layer materials which have been primarily systems and device driven led by electronics and followed in applications of thin film sensors and instrumentation and of late in energy devices such as solar cells, fuel cells and batteries.

The application space has exploded many fold, mainly due to advances in processes as in synthesis methods of new and conventional materials, innovative hybrid techniques of deposition together with concurrent or post thermal processes. Thin film processes have evolved from high vacuum - high purity precursors for electronics to non vacuum methods based on colloids, gels and inks wherein deposition and thermal processing are separated. Thus various process innovations have centred around energy quanta, length scale and time constants involved in processes giving rise to not only in-situ materials processing but also enabling functionality in multi-layers.

Evolution from performance enhancement of coatings to complex functional multi -materials and multi layered thin and thick films have seen tremendous progress in the last decade. It is timely and appropriate to take stock of advances in materials, processes and devices in a systems perspective.

The 1<sup>st</sup> International Conferences on **Coatings, Thin Films, Multi Layer Devices & Systems - I** will focus on innovation and development of multilayer systems and devices with following themes

- 1) Coatings, Thin Films and Multi Layer Materials for Surface Engineering & Substrate Protection
- 2) Multi layer Materials & Processes for Energy Devices
- 3) Multilayer Materials and Processes for Sensors
- 4) Multilayer Coatings for Biomedical Devices
- 5) Materials, Processes for Electronic Devices

The conference is planned with full three days programme with plenary, key note and invited presentation from top international researchers. A poster session is also planned. Selected paper of the conference will be published in a special issue of international journal.

## **Organising Committee**

### ***Chairperson***

Dr. K. Balasubramanian

Director

Nonferrous Materials Technology Development Centre (NFTDC)

P.O.Kanchanbagh, Hyderabad - 500 058, INDIA

### ***Co-Chair***

Professor Margaret M. Stack

Department of Mechanical and Aerospace Engineering

University of Strathclyde, James Weir Building, 75 Montrose St., Glasgow

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### ***Convener***

Dr. Manish Roy

Defence Metallurgical Research Laboratory (DMRL)

P.O.Kanchanbagh, Hyderabad - 500 058 , INDIA

AND

Dr Hareesha Iddya

Director (Technical)

Nonferrous Materials Technology Development Centre (NFTDC)

P.O.Kanchanbagh, Hyderabad - 500 058, INDIA

## International Advisory Board

- ❖ Prof. R.J.K. Wood, UK
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- ❖ Prof. Indranil Manna, India
- ❖ Prof. N. Prabhu, India

## Important Deadlines

Abstract Submission	: 15 August 2016
Poster Submission	: 30 September 2016
Confirmation of Presentation	: 31 October 2016

## Contact

For further information, please contact:

e-mail: [organiser@multilayer-conf.in](mailto:organiser@multilayer-conf.in)

For latest updates, please visit the Conference Website:

<http://www.multilayer-conf.in>

## Registration

- Indian delegates : INR 12000
- Foreign delegates : EURO 300
- Foreign Student Delegates : EURO 200
- Students : INR 5000

### Registration Form:

Form can be downloaded from the website <http://www.multilayer-conf.in/> The filled registration form can be sent as an attachment to the following email address: [organiser@multilayer-conf.in](mailto:organiser@multilayer-conf.in)

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Director, NFTDC, P.O.Kanchanbagh, Hyderabad 500 058, INDIA

## Venue

**NONFERROUS MATERIALS TECHNOLOGY DEVELOPMENT CENTRE**  
P.O.KANCHANBAGH, HYDERABAD – 500 058  
INDIA

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Web: <http://www.multilayer-conf.in>

<b>MULTI LAYER - I</b>				
<b>Sl. No</b>	<b>Time-slot</b>	<b>Speaker</b>		<b>Event/Activity</b>
				<b>DAY 1 - Dec 14, 2016</b>
	0900 - 0915			<b>Welcome &amp; Introductory Remarks</b>
		<b>SESSION CHAIRPERSON: R J K WOOD</b>		<b>OPENING SESSION</b>
1	0915 - 1000	A Cavaleiro	KEYNOTE	<b>How can the structural arrangement determine the tribological behaviour of hard coatings</b>
2	1000 - 1045	Mohan Rao	KEYNOTE	<b>Issues in the Development of Thin Film Batteries</b>
	1045 - 1115			<b>Tea</b>
		<b>SESSION CHAIRPERSON: ILLE GEBESCHUBER</b>		<b>SESSION II - SENSORS &amp; DEVICES I</b>
3	1115 - 1200	Krishna Shenai	KEYNOTE	<b>Materials and Processes for Power Semiconductor Devices</b>
4	1200 - 1245	Sandra Carvalho	KEYNOTE	<b>Electrodes deposited on piezoelectric PVDF substrates for biomedical sensor application</b>
5	1245 - 1330	K Ram Babu	KEYNOTE	<b>Thin Film Sensors - A Review</b>
	1330 - 1415			<b>Lunch</b>
		<b>SESSION CHAIRPERSON: KRISHNA SHENAI</b>		<b>SESSION III - COATINGS, WEAR &amp; CORROSION I</b>
6	1415 - 1500	R J K Wood	KEYNOTE	<b>Galling Wear Resistance of Nanostructured CVD W/WC Coatings</b>
7	1500 - 1545	Raman Singh	KEYNOTE	<b>Ultra-thin Graphene Coating - The Novel Nanotechnology for Remarkable Corrosion Resistance</b>
	1545 - 1600			<b>Tea</b>
		<b>SESSION CHAIRMAN: J BERNARDI</b>		<b>SESSION IV - COATINGS, WEAR &amp; CORROSION II</b>
8	1600 - 1620	Indumathi Vijey		<b>Experimental investigation on enhancement of corrosion resistance of 15CDV6 steel by using various protective coatings</b>
9	1620 - 1640	Bharti Malvi		<b>High Temperature Erosion of YSZ as Thermal Barrier and Abradable Coating</b>
10	1640 - 1700	Krishnan Kannoorpatti		<b>Significance of Pourbaix Diagrams to The Corrosion of Hardfacing Alloys Based on Metal Carbides</b>
11	1700 - 1720	Mohd Aqeel		<b>Effects of Plasma Nitriding on the Sliding Wear of M 50 NiL Steel</b>
	1830 - 1930			<b>DINNER</b>

<b>MULTI LAYER - I</b>				
<b>Sl. No</b>	<b>Time-slot</b>	<b>Speaker</b>		<b>Event/Activity</b>
				<b>DAY 2 - Dec 15, 2016</b>
		SESSION CHAIRMAN: A CAVALEIRO		<b>SESSION V - COATINGS, WEAR &amp; CORROSION III</b>
12	0900 - 0945	Ille C Gebeshuber	KEYNOTE	<b>Functional coatings, thin films and multi layers in organisms - Examples, basic principles, and bioinspired engineering applications</b>
13	0945 - 1030	M S Bobji	KEYNOTE	<b>Anodic Alumina Based Ordered Nanocomposite Coating for Tribology</b>
	1030 - 1100			<b>Tea</b>
		SESSION CHAIRMAN: MOHAN SHANKARAN		<b>SESSION VI - ENERGY DEVICES</b>
14	1100 - 1145	Tata N Rao	KEYNOTE	<b>Role of coatings, thin films and membranes in energy generation and storage</b>
15	1145 - 1230	Zaoli Zhang	KEYNOTE	<b>Study on the atomic and electronic structure in mono- and multi-layers of nitride films</b>
16	1230 - 1315	Palani Balaya	KEYNOTE	<b>ULTRASAFE SUPERCAP BATTERY for e-mobility</b>
	1315 - 1400			<b>Lunch</b>
		SESSION CHAIRMAN: PALANI BALAYA		<b>SESSION VII - SENSORS &amp; DEVICES II</b>
17	1400 - 1445	V K Jain	KEYNOTE	<b>Micro and Nano Technologies for Sensors</b>
18	1445 - 1505	P K P Rupa		<b>Thin Film Strain Gauge &amp; Thin Film TC sensors</b>
19	1505 - 1525	Manivel Raja		<b>Development of Thin Films and Multilayers of Advanced Functional Materials for Magnetic Sensor Applications.</b>
	1525 - 1600			<b>Tea</b>
		SESSION CHAIRMAN: S CARVALHO		<b>SESSION VIII - BIO - APPLICATIONS</b>
20	1600 - 1645	Caroline Richard	KEYNOTE	<b>Studies on scratch and fretting wear behaviour of nano-ceramic coated Ti-6Al-4V alloys used for orthopaedic application</b>
21	1645 - 1730	Sampath Kumar	KEYNOTE	<b>Tailoring the biodegradation OF MAGNESIUM ALLOYS by nanofibrous coatings for Temporary implant applications</b>
22	1730 - 1750	S. Ramakrishna		<b>Multilayer Thin Film Coatings for Filters used in Biomedical Applications</b>
	1830 - 1930			<b>DINNER</b>

**MULTI LAYER - I**

Sl. No	Time-slot	Speaker		Event/Activity
				<b>DAY 3 - Dec 16, 2016</b>
		SESSION CHAIRMAN: V K JAIN		<b>SESSION IX - MATERIALS, PROCESSES &amp; CHARACTERISATION I</b>
23	0900 - 0945	Mohan Shankaran	KEYNOTE	Plasma-assisted nucleation of nanoparticles: From dust formation to nanotechnology
24	0945 - 1030	M R Ripoll	KEYNOTE	In-situ formation of low friction tribofilms by the synergy between tungsten-based coatings and extreme-pressure additives
25	1030 - 1115	J Bernardi	KEYNOTE	Advanced Characterisation of nanostructures and Interfaces
	1115 - 1130			Tea
		SESSION CHAIRMAN: TATA N RAO		<b>SESSION X - MATERIALS, PROCESSES &amp; CHARACTERISATION II</b>
26	1130 - 1150	Subir Roy		Development of High Emissivity Coating on Metal Substrates for High Temperature Applications
27	1150 - 1210	S.H.Rahul		Development of yttria stabilized zirconia coatings on porous $\alpha$ -Al <sub>2</sub> O <sub>3</sub> substrates
28	1210 - 1230	M.Gririraj		Synthesis and processing of doped ZnO nanopowders for Multi-Layer Varistors (MLVs)
29	1230 - 1250	P Suresh Babu		Deformation behaviour of TiN and nanocomposite coatings under cyclic impact tests using cube-corner indenter
30	1250 - 1310	P. Saravanan		Interphase Exchange Coupling in Sm-Co/Fe Multilayers
31	1310 - 1330	Bibhu Prasad Sahu		Effect of Zr contents and substrate bias voltage on microstructure and properties of DC magnetron sputtered Ni-Zr thin films
	1330 - 1430			Lunch