



ISAF ECAPD PFM 2012

Aveiro, Portugal

Proceedings of 2012 21st IEEE ISAF held jointly with 11th
IEEE ECAPD and IEEE PFM (ISAF/ECAPD/PFM)

Preface

Welcome to the proceedings of the **ISAF-ECAPD-PFM 2012 Conference**, which was held at the University of Aveiro, Portugal, on the 9th – 13th July 2012. This was a major conference, combining the 21st IEEE International Symposium on Applications of Ferroelectrics (ISAF 2012), 11th European Conference on Polar Dielectrics (ECAPD 2012), and 4th Conference “Piezoresponse Force Microscopy and Nanoscale Phenomena in Polar Materials” (PFM 2012). We had around 470 participants from all over the world and representing all the continents. This proceedings contains 149 of the papers submitted for the conference, including several from noted Invited speakers (Nº 3 - Dr Yuri Genenko, Nº 20 – Dr Marco Bazzan, Nº 25 - Prof. Shujun Zhang, Nº 67 - Prof. Ram S. Katiyar, Nº 125 - Dr Hiroshi Funakubo, and Nº 313 Prof. Hartmut W. Gundel), Plenary Speaker Dr. Dwight Viehland (Nº 83), and Lifetime Achievement Prize Winner Prof. Vladimir Fridkin (Nº 5).

The objective of ISAF-ECAPD-PFM 2012 was to achieve an international and interdisciplinary exchange of information and cooperation among researchers and engineers in academia, government laboratories, and industries on various topics related (but not limited) to processing, characterization and applications of ferroelectric, piezoelectric, pyroelectric, dielectric and other functional materials of the 21st century. The series of ISAF, ECAPD and PFM conferences

have become important forums due to continuing high level of discussions and professional synergy in multiple topics, and it was hoped that the concentration of the three conferences would inevitably lead to further synergy and advancement in the relevant fields. We were delighted to have a plethora of high-quality speakers, and are thankful to all contributors to ISAF-ECPAD-PFM 2012, including our generous sponsors and exhibitors.

Robert Pullar

Proceeding and Publications Chair of ISAF-ECPAD-PFM 2012

University of Aveiro, Portugal

Andrei Kholkin

General Chair of ISAF-ECPAD-PFM 2012

University of Aveiro, Portugal



International Symposium on Applications of Ferroelectrics (ISAF)

ISAF is the continuation of a series of international conferences sponsored by the Ultrasonics, Ferroelectrics and Frequency Control (UFFC) Society of the Institute of Electric and Electronic Engineers (IEEE). It is aimed to providing a forum to present and discuss the state-of-the-art developments in the field of ferroelectrics and related materials and their applications, including theory and modeling, materials preparation and characterization, device physics and implementation. Special attention is devoted to emerging materials and applications.

European Conference on the Applications of Polar Dielectrics (ECAPD)

ECAPD is the principal European and international forum where the latest research and technological advances in the field of polar dielectric materials are presented and discussed. The objective of ECAPD is to foster an international and interdisciplinary exchange of information and cooperation amongst researchers in academia, research institutions, and industries, and to stimulate growth in the field of polar dielectric materials and applications.

International Symposium Piezoresponse Force Microscopy and Nanoscale Phenomena in Polar Materials (PFM)

PFM features tutorials on the principles and applications of PFM to ferroelectric and multiferroic materials, as well as new areas of PFM applied to strongly correlated oxides and energy storage and conversion materials. In these systems, the local bias-strain coupling is mediated by Jahn-Teller distortions and oxygen or cationic vacancy diffusion, providing a sensitive measure of local dynamics. The recent advances in imaging of conventional ferroelectrics and polar materials as well as time and voltage spectroscopy of static and dynamic domain structures were presented.

Organization of the ISAF-ECAPD-PFM 2012 Conference

General Chair:	Andrei Kholkin (Portugal)
Finance Committee:	Ahmad Safari (USA) Sergio Pereira (Portugal)
Treasurer:	Fernando Batista (Portugal)
Technical Program Committee:	David Cann (USA) Brahim Dkhil (France) Marc Fontana (France) Senentxu Lanceros-Méndez (Portugal) Doru Lupascu (Germany) Satoshi Wada (Japan)
Publication and Proceedings:	Robert Pullar (Portugal)
Sponsorship and Exhibition:	Maciej Wojtas (Portugal)
Poster Sessions:	Ian Reaney (UK)
Administration:	Marina Kholkina Dora dos Santos (Portugal)
Local Arrangements:	Sergey Luchkin Indrani Coondoo Neeraj Panwar Radheshyam Rai Dmitry Karpinsky Ana Geraldés Gonçalo Rodrigues

João Duarte

Conceição Almeida

Nuno Barreto

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Marco Medeiros