

# **6th International Conference on Inter-Disciplinary Underground Science and Technology (i-DUST 2016)**

E3S Web of Conferences Volume 12 (2016)

Avignon, France  
1 - 3 June 2016

## **Editors:**

**K. Coulie  
G. Micolau  
P. Febvre**

ISBN: 978-1-5108-3361-6

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work is licensed under a Creative Commons Attribution license:  
<http://creativecommons.org/licenses/by/2.0/>

**You are free to:**

**Share** – copy and redistribute the material in any medium or format.

**Adapt** – remix, transform, and build upon the material for any purpose, even commercial.

The licensor cannot revoke these freedoms as long as you follow the license terms.

**Under the following terms:**

You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. The copyright is retained by the corresponding authors.

Printed by Curran Associates, Inc. (2016)

For additional information, please contact EDP Sciences – Web of Conferences  
at the address below.

EDP Sciences – Web of Conferences  
17, Avenue du Hoggar  
Parc d'Activité de Courtabœuf  
BP 112  
F-91944 Les Ulis Cedex A  
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

[contact-edps@webofconferences.org](mailto:contact-edps@webofconferences.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)



## WEDNESDAY JUNE 1<sup>ST</sup> 2016

08:30 REGISTRATION

09:00 CONFERENCE OPENING

### SESSION A Session Chair

Benjamin Canuel, LP2N, Université Bordeaux/IOGS/CNRS:UMR 5298, France

09:30 I1 MIGA and very long baseline atom interferometry at LSBB.....N/A

Andrea Bertoldi<sup>1</sup>

<sup>1</sup> LP2N, Université de Bordeaux

10:05 P1 Forced oscillations of the mesopause by electric field quake precursor during strong solar activity : [SQUID]2 observation of the Nepal quakes, April 25th, 2015.....N/A

Georges Waysand<sup>1</sup>, Elisabeth Pozzo di Borgo<sup>2,3</sup>, Alain Cavaillou<sup>1</sup>

<sup>1</sup> Laboratoire Souterrain Bas-Bruit, La Grande Combe, F-84000 Rustrel, <sup>2</sup> Université d'Avignon et des Pays de Vaucluse, <sup>3</sup> UMR 1114 INRA-UAPV EMMAH

10:30 Coffee Break

10:55 P2 GPR velocity tomography characterization of Urgonian limestone (LSBB - Rustrel).....N/A

Andriani Monica-Vita<sup>1</sup>, Garambois Stéphane<sup>2</sup>, Rousset Dominique<sup>1</sup>, Sénéchal Guy<sup>1</sup>

<sup>1</sup> LFCR (UMR 5150) UPPA, <sup>2</sup> ISTERRE (UMR 5275) UGA

11:20 P3 Sprite Initiation from Microfluctuations in the Lower Ionosphere.....N/A

Martin Fullekrug<sup>1</sup>, Nathan smith<sup>2</sup>, Kuang Koh<sup>1</sup>, Zhongjian Liu<sup>1</sup>, Andrew Mezentsev<sup>1</sup>, Robert Watson<sup>1</sup>, Ivan Astin<sup>1</sup>, Stephane Gaffet<sup>2</sup>, Adrian Evans<sup>1</sup> and Michael Rycroft<sup>1</sup>

<sup>1</sup> University of Bath, Bath, UK, <sup>2</sup> Université d'Avignon, LSBB, Rustrel, France.

11:45 P4 Overview and outlook on Muon Survey Tomography based on Micromegas detectors for Unreachable Sites Technology (MUST2).....1

I. Lazaro Roche<sup>1</sup>, T. Serre<sup>1</sup>, J.B. Decitre<sup>1</sup>, A. Bitri<sup>2</sup>, C. Truffert<sup>3</sup> & S. Gaffet<sup>1</sup>

<sup>1</sup> LSBB UMS 3538, <sup>2</sup> BRGM, <sup>3</sup> Iris instruments

12:10 P5 The Mont Terri rock laboratory - 20 years of experience in a shale formation, St-Ursanne, Switzerland.....N/A

David Jaeggi<sup>1</sup>, Paul Bossart<sup>1</sup>, Christophe Nussbaum<sup>1</sup>

<sup>1</sup> Swisstopo, Rue de la gare 63, 2882 St-Ursanne, Switzerland

12:35 Lunch

### SESSION B Session Chair

Tony Monfret, Géoazur, Valbonne, France

14:00 I2 Simultaneous geomagnetic monitoring with SQUIDs across the LSBB laboratory.....7

Samuel Henry<sup>1</sup>

<sup>1</sup> University of Oxford, UK

14:35 P6 New insight on the dynamic of the Fontaine de Vaucluse karsthydrossystem from Long Base Tiltmeter Data.....N/A

Frédéric Boudin<sup>1</sup>, Nolwenn Lesparre<sup>2,3</sup>, Jean Chéry<sup>2</sup>, Cédric Champollion<sup>2</sup>, Charles Danquigny<sup>4</sup>, Han Cheng Seat<sup>5,6</sup>, Michel Cattoen<sup>5,6</sup>, Laurent Longuevergne<sup>7</sup>

<sup>1</sup> Laboratoire de géologie de l'ENS, UMR CNRS 8538, École Normale Supérieure, Paris, France, <sup>2</sup> Observatoire de recherche méditerranéen de l'environnement, Géosciences Montpellier, Université Montpellier Sciences et Techniques, Montpellier, France, <sup>3</sup> ArGenCo Department,



*Applied Geophysics, University of Liege, Liege, Belgium, <sup>4</sup> UAPV, UMR1114 EMMAH, Avignon, France, <sup>5</sup> CNRS, LAAS, Toulouse, France, <sup>6</sup> Univ de Toulouse, INP, LAAS, Toulouse, France, <sup>7</sup> Géosciences Rennes, UMR CNRS 6118, Université de Rennes 1, Rennes, France.*

**15:00 P7 Semi-analytical approach for the study of wave propagation in the configuration of a thick-walled, fluid-filled spherical shell embedded in an elastic medium.....N/A**

Ako Bahari <sup>2</sup>, Gaëlle Lefevre-Mesgouez <sup>1</sup>, Arnaud Mesgouez <sup>1</sup>, Neil Popplewell <sup>2</sup>

<sup>1</sup> UMR EMMAH, UAPV-INRA, Avignon, France, <sup>2</sup> University of Manitoba, Winnipeg, Canada

**15:25 P8 Understanding fluctuations of the Earth gravity field for future Gravitational Wave detectors.....N/A**

B. Canuel <sup>1</sup>, S. Pelisson <sup>1</sup>, A. Bertoldi <sup>1</sup>, R. Geiger <sup>2</sup>, A. Landragin <sup>2</sup> and P. Bouyer <sup>1</sup>

<sup>1</sup> LP2N, Université Bordeaux/IOGS/CNRS:UMR 5298, France, <sup>2</sup> LNE-SYRTE, Observatoire de Paris, PSL Research University, CNRS, Sorbonne Universités, UPMC Univ. Paris 06, France

**15:50 P9 Characteristics of lightning flashes generating sprites above storms.....12**

Serge Soula <sup>1</sup>, Oscar Van Der Velde <sup>2</sup>, Joan Montanya <sup>2</sup>, Martin Fullekrug <sup>3</sup>, Andrew Mezentsev <sup>3</sup>, Janusz Mlynarczyk <sup>4</sup>

<sup>1</sup> Laboratoire d'Aérodynamique, Université de Toulouse, CNRS, Toulouse, France, <sup>2</sup> Technological University of Catalonia, Terrassa, Spain, <sup>3</sup> University of Bath, Bath, UK, <sup>4</sup> AGH University of Science and Technology, Krakow, Poland

**16:15 Coffee Break**

**SESSION C Session Chair**

Jean-Paul Rolando, Total SA, Pau, France

**16:40 P10 Advanced field course 2014: Report on MT and Gravity Measurements in the Luberon and Vaucluse Region in Southern France.....N/A**

J. Bretschneider <sup>1</sup>, M. Guzavina <sup>1</sup>, C. Haeger <sup>1</sup>, P. Hellenkamp <sup>1</sup>, B. Heyn <sup>1</sup>, L. Kahlert <sup>1</sup>, V. Lueschow <sup>1</sup>, L. Manske <sup>1</sup>, N.-C. Neddermann <sup>1</sup>, P. Prasse <sup>1</sup>, N. Schliffke <sup>1</sup>, L. M. Schmidt <sup>1</sup>, A. Stieren <sup>1</sup>, J. Schmalzl <sup>1</sup> and M. Becken <sup>1</sup>

<sup>1</sup> Institut für Geophysik, Universität Münster, Corrensstr. 24, D-48149 Münster, Germany

**17:05 P12 Three-component (3C), three-dimensional (3D) seismic array analysis at LSBB: Spatial coherency of polarization properties.....N/A**

Claire Labonne <sup>1,2</sup>, Olivier Sèbe <sup>1</sup>, Stéphane Gaffet <sup>2,3</sup>, François Schindelé <sup>1</sup>

<sup>1</sup> CEA, DAM, DIF, Arpajon, France, <sup>2</sup> Univ. Nice Sophia Antipolis, CNRS, IRD, Observatoire de la côte d'Azur, Géoazur UMR 7329, Valbonne, France, <sup>3</sup> LSBB UMS 3538, Rustrel, France

**17:30 P13 First analyses of the iOSG-type superconducting gravimeter at the low noise underground laboratory (LSBB URL) of Rustrel, France.....19**

Séverine Rosat <sup>1</sup>, Jacques Hinderer <sup>1</sup>, Jean-Paul Boy <sup>1</sup>, Frédéric Littel <sup>1</sup>, Daniel Boyer <sup>2</sup>, Jean-Daniel Bernard <sup>3</sup>, Yves Rogister <sup>3</sup>, Anthony Mémin <sup>4</sup>, Stéphane Gaffet <sup>2</sup>

<sup>1</sup> Institut de Physique du Globe de Strasbourg; UMR 7516, Université de Strasbourg/EOST, CNRS, <sup>2</sup> LSBB, UMS 3538, Rustrel, France, <sup>3</sup> EOST, Strasbourg, <sup>4</sup> Université Nice Sophia Antipolis, CNRS, IRD, Observatoire de la Côte d'Azur

**END OF DAY 1**



## THURSDAY, JUNE 2 2016

### SESSION D Session Chair

**Ana Fernandes**, *Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa, Portugal*

#### 08:30 I3 Life in Deep Sub Surface.....25

Gaël Erauso & Grégoire Galès<sup>1,2</sup>

<sup>1</sup> MIO, Institut Méditerranéen d'Océanologie, Aix-Marseille Université UM 110, Marseille, France, <sup>2</sup> Aix-Marseille Université, CEREGE, Marseille,

#### 09:05 P14 Lightning processes occurring inside thunderclouds and their observation with submicrosecond time resolution.....N/A

Ivana Kolmasova<sup>1,2</sup>, Ondrej Santolik<sup>1,2</sup>, Ludek Uhlir<sup>1</sup>, Radek Lan<sup>1</sup>

<sup>1</sup> Institute of Atmospheric Physics, Prague, Czech Republic, <sup>2</sup> Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic

#### 09:30 P15 R&D of a SIMPLE Bubble Chamber for Dark Matter Searches.....33

M. Felizardo<sup>1</sup>, TA Girard<sup>1</sup>, A. R. Ramos<sup>1</sup>, I. Lazaro<sup>2</sup>, A.C. Fernandes<sup>1</sup>, J.G. Marques<sup>1</sup>, A. Kling<sup>1</sup> and T. Morlat<sup>1</sup>

<sup>1</sup> C2TN, Instituto Superior Técnico, Universidade de Lisboa, Portugal, <sup>2</sup> LSBB UMS 3538, Rustrel, France

#### 09:55 P16 High Quality low-frequency free oscillation strain observations at the black forest underground observatory (BFO), Germany.....N/A

Walter Zürn and Rudolf Widmer-Schmidrig<sup>1</sup>

<sup>1</sup> Black Forest Observatory

10:20

Coffee Break

### SESSION E Session Chair

**Guy Dumont**, *The University of British Columbia, Canada*

#### 10:45 P17 Microbiology of shallow subsurface aquifer and carbonate rocks studied by culture-dependent and culture-independent methods: example of the LSBB, Provence, France.....39

Grégoire Galès<sup>1,2</sup>, Gaël Erauso<sup>2</sup>, Daniel Boyer<sup>3</sup> & Gilles Micolau<sup>4</sup>

<sup>1</sup> Aix-Marseille Université, CEREGE, Marseille, France, <sup>2</sup> Aix-Marseille Université, Université du Sud Toulon-Var, CNRS/INSU, IRD, MIO, UM 110, Marseille, France, <sup>3</sup> LSBB UMS 3538, Rustrel, France, <sup>4</sup> UMR EMMAH, INRA/Université d'Avignon et des Pays de Vaucluse, Avignon

#### 11:10 P18 Particle transport and diffusion in a micro-pump.....N/A

Mounia makhoul, Philippe Beltrame, Maminirina joelson<sup>1</sup>

<sup>1</sup> UMR 1114 University of Avignon (UAPV), INRA, Avignon, France

#### 11:35 P19 Measurement of lightning related electromagnetic signals in a wide frequency range.....N/A

Ondrej Santolik<sup>1,2</sup>, Ivana Kolmasova<sup>1,2</sup>, Ludek Uhlir<sup>1</sup>, Radek Lan<sup>1</sup>

<sup>1</sup> Institute of Atmospheric Physics, Prague, Czech Republic, <sup>2</sup> Charles University, Faculty of Mathematics and Physics, Prague, Czech Republic

#### 12:00 P20 Is groundwater a potential reservoir for the human and plant bacterial pathogens, bacillus cereus and pseudomonas syringae ?.....N/A

Ludivine Rousset<sup>1,2</sup>, Odile Berge<sup>2</sup>, Marina Gillon<sup>3</sup>, Vincent Marc<sup>3</sup>, Anne-Laure Cognard-Plancq<sup>3</sup>, Thierry Clavel<sup>1</sup>, Catherine Duport<sup>1</sup>



<sup>1</sup> SQPOV, UMR0408, Avignon Université, INRA, Avignon, France, <sup>2</sup> MISTRAL, UR0407, INRA, Avignon, France, <sup>3</sup> EMMAH, UMR1114, Avignon Université, INRA, Avignon, France

12:25	<b>Lunch</b>	
SESSION F	<b>Session Chair</b>	
	<b>Matthew Yedlin, University of British Columbia, Canada</b>	
14:05	<b>I4</b>	<b>LSBB, a unique underground laboratory for carbonate reservoir characterisation - Example of the HPMS-Ca Project: Predicting Hydraulic, Petrophysical, Mechanical and Seismic Properties of Carbonates.....N/A</b>
		Yves Guglielmi <sup>1</sup> , Jean Borgomano <sup>1</sup>
		<sup>1</sup> Aix-Marseille Université, CEREGE, Marseille, France
14:40	<b>P21</b>	<b>Ultra-low Noise EEG at LSBB: New Results.....44</b>
		N. Hamzei <sup>1</sup> , J. Steeves <sup>1</sup> , M. Yedlin <sup>1</sup> , GA Dumont <sup>1</sup>
		<sup>1</sup> The university of British Columbia, Canada
15:05	<b>P22</b>	<b>Noise Modeling in a Signal Conditioning Circuit for Low Power Audio Application Using Resistive Sensor.....53</b>
		Stéphane Meillère <sup>1</sup> , Eric Savary <sup>1</sup> , Wenceslas Rahajandraibe <sup>1</sup> , Hervé Barthélémy <sup>1</sup>
		<sup>1</sup> IM2NP, Aix-Marseille Université, Marseille
15:30	<b>P25</b>	<b>On the investigation of voltage controlled oscillator phase noise for IoT applications.....62</b>
		Fayrouz Haddad <sup>1</sup> , Wenceslas Rahajandraibe <sup>1</sup>
		<sup>1</sup> IM2NP, Aix-Marseille Université, Marseille
15:55	<b>Coffee Break</b>	
SESSION G	<b>Session Chair</b>	
	<b>Samuel Henry, University of Oxford, UK</b>	
16:20	<b>P24</b>	<b>Statistical investigations of the Nickel film morphology by Atomic Force Microscopy.....69</b>
		Rosine Coq-Germanicus <sup>1</sup> , Philippe Leclère <sup>2</sup> , Eric Hug <sup>3</sup> , Philippe Descamps <sup>1</sup>
		<sup>1</sup> Normandie Université ENSICAEN /CRISMAT /UMR 6508, Caen, France, <sup>2</sup> Service de Chimie des Matériaux Nouveaux, CIRMAP Université de Mons, Belgium, <sup>3</sup> CRISMAT, Normandie Université UMR CNRS 6508, Caen, France
16:45	<b>P23</b>	<b>Polarisation Properties of [SQUID]2 Horizontal Components at the LSBB (Laboratoire souterrain a bas bruit).....75</b>
		Christian Kwisanga <sup>1</sup>
		<sup>1</sup> University of Rwanda, College of Science and technology, Rwanda
17:10	<b>P26</b>	<b>Progress on Ultra-wideband Multi-Antenna Radar Imaging for MIGA.....82</b>
		M. Yedlin <sup>1</sup> , J.Y. Dauvigniac <sup>2</sup> , N. Fortino <sup>2</sup> , Ch. Pichot <sup>2</sup> , R. Cova <sup>3</sup> , D. Henley <sup>3</sup> , K. Hall <sup>3</sup>
		<sup>1</sup> University of British Columbia, <sup>2</sup> Laboratoire d'Electronique, Antennes et Télécommunications, <sup>3</sup> University of Calgary
17:35	<b>P27</b>	<b>Some technical requirements for insuring valuable measurements toward a 3 Component and 3 Dimension, 3C-3D, seismic array processing.....N/A</b>
		Olivier Sèbe <sup>1</sup> , Claire Labonne <sup>1,2</sup> , Stéphane Gaffet <sup>2,3</sup> , Jean-Baptiste Decitre <sup>3</sup> , Daniel Boyer <sup>3</sup> , Jean-Marc Koenig <sup>1</sup> , François Schindelé <sup>1</sup>
		<sup>1</sup> CEA, DAM, DIF, Arpajon, France, <sup>2</sup> Univ. Nice Sophia Antipolis, CNRS, IRD, Observatoire de la côte d'Azur, Géoazur UMR 7329, Valbonne, France, <sup>3</sup> LSBB, UMS 3538, Rustrel, France
20:00	<b>GALA DINNER</b>	



## FRIDAY, JUNE 3 2016

### SESSION H Session Chair

Guy Sénéchal, *LFCR (UMR 5150) UPPA*

#### 08:35 P28 Low-background gamma spectrometry at the underground laboratory of Ferrières, French Pyrénées.....N/A

Marc Souhaut<sup>1</sup>, Pieter Van Beek<sup>1</sup>, Simon Bejannin<sup>1</sup>, Emilie Le Roy<sup>1</sup>

<sup>1</sup> *Université Toulouse III Paul Sabatier, Observatoire Midi Pyrénées - LAFARA, LEGOS*

#### 09:00 P29 Full-waveform Inversion of GPR data acquired between boreholes in Rustrel carbonates.....88

H. Pinard<sup>1</sup>, S. Garambois<sup>1</sup>, L. Métivier<sup>1</sup>, M. Dietrich<sup>1</sup>, G. Sénéchal<sup>2</sup>, D. Rousset<sup>2</sup>

<sup>1</sup> *STerre, Université Grenoble Alpes & CNRS (UMR 5275), Grenoble, France*, <sup>2</sup> *LFCR, Université de Pau et des Pays de l'Adour, Pau, France*

#### 09:25 P30 Atmospheric Radiation Environment Analyses Based-on CCD Camera at Various Mountain Altitude and Underground sites.....95

Pierre Li Cavoli<sup>1,2</sup>, Guillaume Hubert<sup>2</sup>, José Busto<sup>1</sup>

<sup>1</sup> *the French Aerospace Laboratory (ONERA), Toulouse, France*, <sup>2</sup> *The Center for Particle Physics of Marseille, CNRS/IN2P3, Marseille, France*

#### 09:50 P31 In-Situ Exploration of Hydromechanical properties of Porous and Fractured Carbonates Rocks at Metric Scale.....N/A

S. Séguy<sup>1</sup>, V. Guinot<sup>1</sup>, F. Cappa<sup>2</sup>, Y. Guglielmi<sup>3</sup>, H. Jourde<sup>1</sup>, J.P. Rolando<sup>4</sup>, G. Massonnat<sup>4</sup>

<sup>1</sup> *HydroSciences Montpellier, UMR 5569 CNRS-IRD-UM1-UM2, Université Montpellier 2, France*,

<sup>2</sup> *Université de Nice Sophia-Antipolis, Observatoire de la Côte d'Azur, GeoAzur, Sophia-Antipolis, France*, <sup>3</sup> *Aix-Marseille Université, CEREGE, IRD, CNRS, Marseille, France*, <sup>4</sup> *Total SA, Avenue Larribau, Pau, France*

10:15

Coffee Break

### SESSION I Session Chair

Pascal Febvre, *IMEP-LAHC, CNRS UMR5130, University Savoie Mont Blanc, France*

#### 10:40 P32 Toward an innovative stochastic modeling of electric charges loss through dielectric .....102

G. Micolau<sup>1</sup>, J. Postel-Pellerin<sup>2</sup>, P. Chiquet<sup>2</sup>, M. Joelson<sup>1</sup>, C. Abbas<sup>1</sup>, D. Boyer<sup>2</sup>, C. Ginoux<sup>1</sup>

<sup>1</sup> *UMR EMMAH, University of Avignon*, <sup>2</sup> *IM2NP University of Marseille*, <sup>3</sup> *LSBB, Rustrel*

#### 11:05 P33 Detection of alpha particle contamination in ULA-grade integrated circuits.....111

A.C. Fernandes<sup>1</sup>, T.A. Morlat<sup>1</sup>, M. Felizardo<sup>1</sup>, R.C. Martins<sup>2</sup>, A. Kling<sup>1</sup>, J.G. Marques<sup>1</sup>, T.A. Girard<sup>1,3</sup>

<sup>1</sup> *Centro de Ciências e Tecnologias Nucleares, Instituto Superior Técnico, Universidade de Lisboa. Campus Tecnológico e Nuclear, Bobadela, Portugal* <sup>2</sup> *Instituto de Telecomunicações, Instituto Superior Técnico, Universidade de Lisboa. Lisboa, Portugal*, <sup>3</sup> *Departamento de Física, Faculdade de Ciências, Universidade de Lisboa. Campo Grande, Lisboa, Portugal.*

#### 11:30 P34 Geochemical and hydrodynamic characteristics of the karstic system of Jbal Zaghuan (Northeastern-Tunisia).....N/A

RandaDziria<sup>1</sup>, NajibaChkira<sup>2</sup>, Christophe Emblanch<sup>3</sup>, Kamel Zouaria<sup>4</sup>, Abdelrahmen Gallalid<sup>5</sup>

<sup>1</sup> *Laboratoire de radio-analyses et environnements de l'école d'ingénieurs de Sfax, Sfax, Tunisie*, <sup>2</sup> *Département de géographie, laboratoire de radio-analyses et environnement de l'école d'ingénieurs de Sfax, Faculté des lettres et sciences humaines de Sfax, Tunisie*, <sup>3</sup> *UMR EMMAH, UFRip STS, Université d'Avignon, Avignon, France*, <sup>4</sup> *Commissariat Régional de développement Agricole de Zaghuan, Zaghuan*





- 11:55 P35 Relationship between diagenetic history and fracturation in carbonates.....N/A**  
J. Cochard<sup>1</sup>, Y. Guglielmi<sup>1</sup>, P. Léonide<sup>1</sup>, J. Lamarche<sup>1</sup>, J.P. Rolando<sup>2</sup>, G. Massonnat<sup>2</sup>  
<sup>1</sup> Aix-Marseille Université, CEREGE, IRD, CNRS, Marseille, France, <sup>2</sup>Total SA, Pau, France
- 12:20 P36 Analysis of different magnetic field noise environments for preparing a long-base highly-sensitive magnetic interferometer.....N/A**  
Pascal Febvre<sup>1</sup>, Ali Bozbey<sup>2</sup>, Deniz Balaban<sup>2</sup>, Sasan Razmkhah<sup>2</sup>, Cengiz Çelik<sup>2</sup>, Elisabeth Pozzo di Borgo<sup>4,5</sup>, E. F. Saunderson<sup>6</sup>, D. J. Gouws<sup>5</sup> and C.J. Fourie<sup>7</sup>  
<sup>1</sup> IMEP-LAHC, CNRS UMR5130, University Savoie Mont Blanc, Le Bourget du Lac, France, <sup>2</sup> Department of Electrical and Electronics Eng., TOBB University of Economy and Technology, Ankara, Turkey, <sup>3</sup> LSBB, UMS 3538 UNS/UAPV/CNRS/AMU/OCA, Rustrel, France, <sup>4</sup> UMR1114, UAPV-INRA, EMMAH, Avignon, France, <sup>5</sup> UMR1114, INRA-UAPV, EMMAH, Avignon, France, <sup>6</sup> South African National Space Agency, Space Science Directorate, Hermanus, South Africa, <sup>7</sup> Stellenbosch University, Stellenbosch, South Africa
- 12:45 CLOSING REMARKS**
- 13:00** Lunch

## Additional Papers

### **Seismic Wavefield Polarization – Part I: Describing an Elliptical Polarized Motion, a Review of Motivations and Methods.....117**

Claire Labonne, Olivier Sebe, Stephane Gaffet

### **Seismic Wavefield Polarization – Part II: Definition of a Parameter System in Three-Dimensional (3D) Space, Example Case Review using LSBB Seismic Station Data.....124**

Claire Labonne, Olivier Sebe, Stephane Gaffet, Francois Schindele, Daniel Boyer, Jean-Baptiste Decitre, Alain Cavaillou