



PROGRAMME

Joint IMEKO TC1-TC7-TC13 Symposium
Measurement Science Challenges in Natural and Social Sciences

Realization:

Brazilian Society of Metrology (SBM)

International Measurement Confederation (IMEKO)

National Institute of Metrology, Quality and Technology (Inmetro)

Pontifical Catholic University of Rio de Janeiro (PUC-Rio)

Rio de Janeiro, Brazil

July 31st to August 3rd 2017



PROGRAMME

	MONDAY JULY 31, 2017	TUESDAY AUGUST 1, 2017		WEDNESDAY AUGUST 2, 2017		THURSDAY AUGUST 3, 2017	
9 h - 10 h	-	Guest Speaker Copacabana A		Sightseeing Tour Corcovado Mountain and Christ the Redeemer		Guest Speaker Copacabana A	
10 h - 10 h 30 min	-	Coffee Break				Coffee Break	
10 h 30 min - 12 h 30 min	-	Session 1a Copacabana A	Session 1b Copacabana B			Session 4a Copacabana A	Session 4b Copacabana B
12 h 30 min - 14 h	-	Lunch					
14 h - 16 h	-	Session 2a Copacabana A	Session 2b Copacabana B	Posters Copacabana B	TC1 Board Meeting Mar Azul	TC7 Board Meeting Mar Azul	Session 5 Copacabana B
16 h - 16 h 30 min	-	Coffee Break					
16 h 30 min - 18 h	Registration	Session 3a Copacabana A	Session 3b Copacabana B	Posters Copacabana B	TC13 Board Meeting Mar Azul	Closing Ceremony	
18 h 30 min - 20 h 30 min	Opening Ceremony and Cocktail	-		Barbecue Dinner		-	



MONDAY – JULY 31, 2017

ROOM COPACABANA A	
16 h 30 min – 18 h 30 min	Registration
18 h 30 min – 20 h 30 min	Opening Ceremony and Cocktail

TUESDAY – AUGUST 1, 2017

ROOM COPACABANA A		
9 h - 10 h	<p>A law of ordinal error: the Rasch measurement model and required randomness in an error distribution of ordinal assessments</p> <p>David Andrich</p> <p>Pearson Psychometric Laboratory, Graduate School of Education University of Western Australia</p>	
10 h – 10 h 30 min	Coffee Break	
SESSION 1	ROOM COPACABANA A	ROOM COPACABANA B
10 h 30 min – 10 h 50 min	ID-15 - Applying Design Thinking to systemic problems in educational assessment information management	ID-57 - Nonlinear anisotropic diffusion filtering for the characterization of stochastic structured surfaces
10 h 50 min - 11 h 10 min	ID-75 - The unreasonable effectiveness of theory based instrument calibration in the natural sciences: What can the social sciences learn?	ID-67 - Surface plasmon resonance features of corrugated gold films: wavelength interrogation mode for exhaled gas detection
11 h 10 min – 11 h 30 min	ID-27 - Ecologizing vs modernizing in measurement and metrology	ID-42 - Investigations on infrared-channel-image quality improvements for multispectral imaging
11 h 30 min- 11 h 50 min	ID-58 - The Problem of Patient-Centred Outcome Measurement in Psychiatry: why metrology hasn't mattered and why it should	ID-34 - Exact correction of image distortion in a filter wheel multispectral camera with focus adjustment
11 h 50 min - 12 h 10 min	ID-59 - Patient-Centred Outcome Metrology for Healthcare Decision-Making	ID-39 - Inline Process Monitoring Method for Geometrical Characteristics in Additive Manufacturing
12 h 10 min - 12 h 30 min	-	Optical metrology on measurement of strain and displacements Vicente M. Massaroti e Lucas Rosa Vtech Consulting Ltda.
12 h 30 min - 14 h	Lunch	



SESSION 2	ROOM COPACABANA A	ROOM COPACABANA B
14 h – 14 h 20 min	ID-69 - Test equating for measuring system progress in longitudinal surveys of student academic achievement	ID-36 - Extensive measurement with unrestricted concatenation and no maximal elements
14 h 20 min – 14 h 40 min	ID-54 - Multi-application platform for education & training purposes in photonical measurement engineering & quality assurance with image processing	ID-31 - Employment of a Monte Carlo method in the dynamic characterization of pressure transducers
14 h 40 min – 15 h	ID-62 - Development of digital Open Educational Resource for metrology education	ID-11 - Analysis of the airflow in the TA-2 subsonic wind tunnel
15 h – 15 h 20 min	ID-29 - Education and training in coordinate metrology for industry towards digital manufacturing	ID-68 - Taking degrees of freedom from uncertainty into minimum weight estimate for analytical balances
15 h 20 min – 15 h 40 min	ID-30 - Thinking the future: development of metrology education in Brazil	ID-64 - Standardization of ⁵⁹ Fe by efficiency extrapolation 4 β -g anticoincidence method
15 h 40 min - 16 h	-	ID-61 - Principal investigation for the application of structured light scanning for the measurement of thickness using differential measurement method
16 h - 16 h 30 min	Coffee Break	
SESSION 3	ROOM COPACABANA A	ROOM COPACABANA B
16 h 30 min – 16 h 50 min	ID-09 - An Electromagnetic Force Balance Experiment for Measurement Science Education	ID-79 - Validation of a high resistance calibration method based on a binary voltage divider
16 h 50 min – 17 h 10min	ID-10 - An improved visual description of the VIM	ID-32 - Energy Savings Resulting from Energy Management Program Using Measurement and Verification Procedure
17 h 10 min – 17 h 30 min	ID-28 - Digital transformation of education & training in photonical measurement engineering & quality assurance (PMQ)	ID-83 - Development of an automated system based on the concept of evolutionary hardware to determine the optimal operating point of GMI sensors
17 h 30 min – 17 h 50 min	ID-46 - Measuring the students' level of knowledge on the basis of other students' subjective opinions	ID-73 - The impact of time-of-use electricity tariffs for Brazilian residential consumers using smart meter real data
17 h 50 min – 18 h 10 min	-	Fluke Solutions for Process Calibration Marco Gonçalves Fluke do Brasil



WEDNESDAY – AUGUST 2, 2017

FOYER		
8 h 30 min - 12 h 30 min	Sightseeing tour Corcovado Mountain and the Christ the Redeemer statue	
12 h 30 min - 14 h	Lunch	
	ROOM COPACABANA B	ROOM MAR AZUL
14 h - 16 h	Poster Session	TC1 Board Meeting
16 h – 16 h 30 min	Coffee Break	
	ROOM COPACABANA B	ROOM MAR AZUL
16 h - 18 h	Poster Session	TC13 Board Meeting

POSTER SESSION
ID-01 - A contactless ammeter based on GMR magnetometers
ID-03 - A noncontact instrument based on ultrasound for the evaluation of asynchronous thoracoabdominal movement in respiratory diseases
ID-04 - A nonintrusive system for monitoring the temperature distribution in the bed with applications in the analysis of positional snoring and the prevention of skin ulcerations
ID-05 - A telemedicine system based on the forced oscillation technique for remote monitoring of patients with chronic respiratory diseases
ID-07 - Absolute standardization of ^{22}Na , ^{65}Zn and ^{60}Co by sum-peak method and critical analysis of instrumentation
ID-08 - Absolute Standardization of the ^{133}Ba By Sum-Peak Method and Comparison with Other Methods
ID-12 - Analyses of different methodologies employed for correcting systematic effect
ID-17 - Calibration of an industrial data acquisition system used in a solar heating plant
ID-18 - Confidence interval for the 100p-th percentile for measurement error distributions
ID-19 - Control chart analysis for interferometric length measurement
ID-20 - Convergence analysis of the extended Kalman filter used in the ultrasonic time-of-flight estimation



ID-22 - Design, confection and calibration of a flow phantom with ultrasound applications
ID-24 - Development of the Time and Frequency Laboratory of INACAL
ID-25 - Development of Ultrasound Thermometry Technique Using Tissue-Mimicking Phantom
ID-26 - Participation of universities in the diffusion of metrology research: the case of the Metrology Symposium from CENAM
ID-33 - Estimated impact force for electromagnetic hammer
ID-35 - Exposing all the decay paths of ^{152}Eu and their probabilities
ID-38 - Influence of the light spectral distribution used in the radiometers calibration
ID-40 - Instrumentation for respiratory flow estimation using tracheal sounds analysis: Design and evaluation in measurements of respiratory cycle periods and airflow amplitude
ID-41 - Instrumentation for the analysis of changes in the knee joint of patients with rheumatoid arthritis: focus on low-frequency vibrations
ID-44 - Measurement of the viscosity-temperature coefficient by means of a rotational viscometer
ID-47 - Method of Monte Carlo simulation for the analysis of uncertainty for ultrasonic time-of-flight
ID-48 - Metrological concerns in multiphase flow measurement
ID-50 - Modeling, characterization and test of a pediatric ventricular assist device
ID-71 - The evaluation of the expert competence in field of metrology difference methods
ID-72 - The features of evaluation technical experts' competence in the field of metrology
ID-78 - Uncertainty evaluation for the dynamic measurement of deflections with a falling-weight-type impulse load device
ID-80 - Measurement system for parameters used in determining and monitoring the crops vegetation status
ID-81 - Comparison in determination of mass energy transfer coefficients
ID-82 - Recycled aluminium used in low cost shielding



THURSDAY – AUGUST 3, 2017

ROOM COPACABANA A		
9 h - 10 h 30 min	<p align="center">Challenges in biomeasurements of cells, nucleic acids and proteins</p> <p align="center">Antonio Saraiva, Janaína Cavalcante, Paulo Beltrão</p> <p align="center">CCQM Working Groups on Nucleic Acid, Cell and Protein Analysis of BIPM National Institute of Metrology, Quality and Technology – Inmetro</p>	
10 h 30 – 11 h	Coffee Break	
SESSION 4	ROOM COPACABANA A	ROOM COPACABANA B
11 h – 11 h 20 min	ID-06 - A Two-layer Semi Empirical Model of Nonlinear Bending of the Cantilevered Beam	ID-43 - Irritation-free pattern projection system for accurate 3D face and body scans
11 h 20 min - 11 h 40 min	ID-23 - Inmetro hydrostatic weighing system – determination of solids volume	ID-16 - Biomedical comparison of magnetometers for non-ferromagnetic metallic foreign body detection
11 h 40 min - 12 h	ID-60 - New calibration procedure for differential pressure using twin pressure balances for flowrate measurement	ID-84 - Method based on computational intelligence techniques for localization of firearms projectiles inserted into the human body, by high sensitivity magnetic measurements
12 h – 12 h 20 min	ID-77 - Estimating the uncertainty of the specific surface area of Titanium Oxide Nanotubes calculated from nitrogen adsorption isotherms	ID-55 - Multi-parameter fuzzy design space for QbD approach applied in the development of biomedical devices
12 h 20 min - 12 h 40 min	ID-66 - Strategies to overcome the crisis and leverage the legal control of measuring instruments in Brazil	ID-53 - Monte Carlo simulation for the treatment of male breast cancer
12 h 40 min – 14 h	Lunch	
SESSION 5	ROOM COPACABANA A	ROOM COPACABANA B
14 h – 14 h 20 min	TC7 Board Meeting	ID-37 - Implementing a proficiency test provider for sphygmomanometers in Brazil
14 h 20 min – 14 h 40 min		ID-56 - Network model for service providers at health sector in Brazil – SIBRATEC PRODSAUDE case
14 h 40 min – 15 h		ID-21 - Design and development of a hyperspectral data measurement system used in precision agriculture
15 h – 15 h 20 min		ID-45 - Measuring the performance of Science and Technology Parks: a proposal of a multidimensional model



15 h 20 min – 15 h 40 min		ID-52 - Monitoring and evaluation of food allergen labeling regulation: a selection and ranking model for compliance indicators and respective metrics
15 h 40 min - 16 h		ID-70 - The coordinate measuring machines, essential tools for quality control of dimensional and geometrical specifications of technical components, in the context of the industry 4.0
16 h – 16 h 30 min	Coffee Break	
ROOM COPACABANA A		
16 h 30 min – 18 h	Closing Ceremony	

PAPERS

ID	Title	Authors
01	A contactless ammeter based on GMR magnetometers	C S Neves, D P Magalhães, C R H Barbosa and E C Oliveira.
03	A noncontact instrument based on ultrasound for the evaluation of asynchronous thoracoabdominal movement in respiratory diseases	C F Costa, N V Oliveira, E P Silva Júnior and P L Melo.
04	A nonintrusive system for monitoring the temperature distribution in the bed with applications in the analysis of positional snoring and the prevention of skin ulcerations	D G Oliveira, R Wajnsztajn, J A Silva, J A Mesquita Júnior and P L Melo.
05	A telemedicine system based on the forced oscillation technique for remote monitoring of patients with chronic respiratory diseases	N V Oliveira, M H N Santos, L M Aligleri and P L Melo.
06	A Two-layer Semi Empirical Model of Nonlinear Bending of the Cantilevered Beam	I U Zulkarnay , T T Kaverzneva, D A Tarkhov, V A Tereshin, T V Vinokhodov and D R Kapitsin.
07	Absolute standardization of ^{22}Na , ^{65}Zn and ^{60}Co by sum-peak method and critical analysis of instrumentation	M T F Araújo, R Poledna, R L Silva, J U Delgado, M C M de Almeida, R T Lopes, L F F Alfredo, E V Veras, J Rangel, P A L Cruz, C J da Silva.
08	Absolute Standardization of the ^{133}Ba By Sum-Peak Method and Comparison with Other Methods	R L da Silva, J U Delgado, M C M de Almeida, R Poledna, A F F Lopes, M T F Araújo , O L Trindade, E V Veras, J Rangel, P A L Cruz, C J da Silva.
09	An Electromagnetic Force Balance Experiment for Measurement Science Education	L M Faller and H Zangl.
10	An improved visual description of the VIM	O-J Purata-Sifuentes, A-Y Belman-Hernández and A-G Fernández-Torres.
11	Analysis of the airflow in the TA-2 subsonic wind tunnel	M L C C Reis, M S Souza, M C C Araújo.
12	Analyses of different methodologies employed for correcting systematic effect	N A Guimarães, W J L Garção, A A Isnard, R G Santana.
15	Applying Design Thinking to systemic problems in educational assessment information management	W P Fisher Jr, E P-T Oon and S Benson.
16	Biomedical comparison of magnetometers for non-ferromagnetic metallic foreign body detection	L G S Fortaleza, E C Monteiro, C R H Barbosa, E C Silva and L A P Gusmão.
17	Calibration of an industrial data acquisition system used in a solar heating plant	F B Coelho and A F Orlando.
18	Confidence interval for the 100p-th percentile for measurement error distributions	C Arrieta, R C Souza, R F Calili.
19	Control chart analysis for interferometric length measurement	L Alvarez.
20	Convergence analysis of the extended Kalman filter used in the ultrasonic time-of-flight estimation	R Gouveia, J Villanueva, F Santos and J Silva.
21	Design and development of a hyperspectral data measurement system used in precision agriculture	M C Luculescu, L Cristea, S C Zamfira and A Boer.

22	Design, confection and calibration of a flow phantom with ultrasound applications	D P Oliveira, W C A Pereira, R P B Costa-Félix.
23	Inmetro hydrostatic weighing system – determination of solids volume	J J P Santos Junior, R G Pereira, M Rosendahl, D M Santo Filho, J M G Gouveia.
24	Development of the Time and Frequency Laboratory of INACAL	H Diaz.
25	Development of Ultrasound Thermometry Technique Using Tissue-Mimicking Phantom	A E Berkovich, E M Smirnov, A D Yuhnev, Y A Gataulin, D E Sinitsyna, D A Tarhov.
26	Participation of universities in the diffusion of metrology research: the case of the Metrology Symposium from CENAM	O-J Purata-Sifuentes, A-G Fernández-Torres and A-Y Belman-Hernández.
27	Ecologizing vs modernizing in measurement and metrology	W P Fisher Jr and A J Stenner.
28	Digital transformation of education & training in photonical measurement engineering & quality assurance (PMQ)	D Hofmann, R Margull and P-G Dittrich.
29	Education and training in coordinate metrology for industry towards digital manufacturing	L Rocha, E Savio, M Marxer, F Ferreira.
30	Thinking the future: development of metrology education in Brazil	L S Alves and J M Granjeiro.
31	Employment of a Monte Carlo method in the dynamic characterization of pressure transducers	F R F Theodoro, M L C C Reis, C d'A Souto.
32	Energy Savings Resulting from Energy Management Program Using Measurement and Verification Procedure	R S Vieira, R F Calili ¹ , A S Aranha and L F Fabbriani.
33	Estimated impact force for electromagnetic hammer	L C Lemos Júnior, J J Silva and J S Rocha Neto, IEEE senior member.
34	Exact correction of image distortion in a filter wheel multispectral camera with focus adjustment	C Zhang, R Celestre, M Rosenberger, G Notni.
35	Exposing all the decay paths of ¹⁵² Eu and their probabilities	L F F Alfredo, P A L Cruz, J U Delgado, R T Lopes.
36	Extensive measurement with unrestricted concatenation and no maximal elements	G A Kyriazis.
37	Implementing a proficiency test provider for sphygmomanometers in Brazil	B A Rodrigues Filho, R F Farias, W Anjos.
38	Influence of the light spectral distribution used in the radiometers calibration	J C Moraes and L O Guerra.
39	Inline Process Monitoring Method for Geometrical Characteristics in Additive Manufacturing	M Preissler, J Broghammer, M Rosenberger, G Notni.
40	Instrumentation for respiratory flow estimation using tracheal sounds analysis: Design and evaluation in measurements of respiratory cycle periods and airflow amplitude	L L Gomes, N V Oliveira, L M Tauil, R A Mattos and P L Melo.
41	Instrumentation for the analysis of changes in the knee joint of patients with rheumatoid arthritis: focus on low-frequency vibrations	A C D Faria, G R C Pinheiro, J Neri and P L Melo.
42	Investigations on infrared-channel-image quality improvements for multispectral imaging	M Rosenberger, C Zhang, R Celestre, G Notni.

43	Irritation-free pattern projection system for accurate 3D face and body scans	G Notni, C Bräuer-Burchardt, S Heist, A Brahm, P Kühmstedt
44	Measurement of the viscosity-temperature coefficient by means of a rotational viscometer	A P F Barbosa, C S C de Castro, D M Santo Filho, J J P Santos Junior ¹ , M Rosendahl, J M G Gouveia.
45	Measuring the performance of Science and Technology Parks: a proposal of a multidimensional model	R M Lyra and M F L Almeida.
46	Measuring the students' level of knowledge on the basis of other students' subjective opinions	I U Zulkarnay, A I Dashkina, D A Tarkhov.
47	Method of Monte Carlo simulation for the analysis of uncertainty for ultrasonic time-of-flight	F Santos , J Villanueva, R Gouveia and J Silva.
48	Metrological concerns in multiphase flow measurement	E Silva, I T Chacon, D A Garcia, M Rosendahl, R S Teixeira, and M H Farias.
50	Modeling, characterization and test of a pediatric ventricular assist device	D L Sousa, T D Cordeiro, T R Melo, J S Rocha Neto, I A Cestari, and A M N Lima.
52	Monitoring and evaluation of food allergen labeling regulation: a selection and ranking model for compliance indicators and respective metrics	L F R Criollo, M F L Almeida and R F Calili.
53	Monte Carlo simulation for the treatment of male breast cancer	N A Guimarães, A X da Silva, J P Reis Junior, J M Lopes, W J L Garção.
54	Multi-application platform for education & training purposes in photonical measurement engineering & quality assurance with image processing	P-G Dittrich, B Buch, A Golomoz, R Celestre, R Fütterer, P Votyakov, M Rosenberger and G Notni.
55	Multi-parameter fuzzy design space for QbD approach applied in the development of biomedical devices	D R T Velázquez, D R Louzada, E C Monteiro, L G S Fortaleza, C R H Barbosa, E C Silva, L A P Gusmão.
56	Network model for service providers at health sector in Brazil – SIBRATEC PRODSAUDE case	A L M de Oliveira, E Margotti.
57	Nonlinear anisotropic diffusion filtering for the characterization of stochastic structured surfaces	N Loftfield, M Kästner and E Reithmeier.
58	The Problem of Patient-Centred Outcome Measurement in Psychiatry: why metrology hasn't mattered and why it should	S P Barbic, S J Cano, S Mathias.
59	Patient-Centred Outcome Metrology for Healthcare Decision-Making	S J Cano, L R Pendrill, S P Barbic, W P Fisher Jr.
60	New calibration procedure for differential pressure using twin pressure balances for flowrate measurement	M Rosendahl, S N Roberta, R M Marcelo, S S Walmir, L S F Paulo, J M G Gouveia, M H Farias, S O Jackson, P R G Couto.
61	Principal investigation for the application of structured light scanning for the measurement of thickness using differential measurement method	R Illmann, M Rosenberger, G Notni.
62	Development of digital Open Educational Resource for metrology education	L S Alves and J M Granjeiro.
64	Standardization of ⁵⁹ Fe by efficiency extrapolation 4pβ-g anticoincidence method	C J da Silva, P A L Cruz, A Iwahara, J S Loureiro, A Ruzzarin and L Tauhata.
66	Strategies to overcome the crisis and leverage the legal control of measuring instruments in Brazil	A N Soratto, B A Rodrigues Filho, L L Nunes

67	Surface plasmon resonance features of corrugated gold films: wavelength interrogation mode for exhaled gas detection	E P Rodrigues , A M N Lima , L C Oliveira, T A T de Sousa and H Neff.
68	Taking degrees of freedom from uncertainty into minimum weight estimate for analytical balances	F L Cacaís , J U Delgado and V M Loayza.
69	Test equating for measuring system progress in longitudinal surveys of student academic achievement	C Nguyen, P Griffin, M Wu.
70	The coordinate measuring machines, essential tools for quality control of dimensional and geometrical specifications of technical components, in the context of the industry 4.0	F Ferreira and H Guerra.
71	The evaluation of the expert competence in field of metrology difference methods	O Velychko, T Gordiyenko.
72	The features of evaluation technical experts' competence in the field of metrology	O Velychko, S Karpenko and I Karpenko.
73	The impact of time-of-use electricity tariffs for Brazilian residential consumers using smart meter real data	F S Azevedo and R F Calili.
75	The unreasonable effectiveness of theory based instrument calibration in the natural sciences: What can the social sciences learn?	A J Stenner, M H Stone and W P Fisher Jr.
77	Estimating the uncertainty of the specific surface area of Titanium Oxide Nanotubes calculated from nitrogen adsorption isotherms	E A Blanco, F M Ortega, C E G Sánchez.
78	Uncertainty evaluation for the dynamic measurement of deflections with a falling-weight-type impulse load device	L Martins, A Ribeiro, J A Sousa, A Freire, S Fontul, F Batista, A Maia.
79	Validation of a high resistance calibration method based on a binary voltage divider	V Cabral, L Ribeiro, J A Sousa.
80	Measurement system for parameters used in determining and monitoring the crops vegetation status	M C Luculescu, L Cristea, S C Zamfira and A Boer.
81	Comparison in determination of mass-energy transfer coefficients	G J Teixeira, C H Souza, R S Cardoso, J G P Peixoto.
82	Recycled aluminium used in low cost shielding	A V Pantoja, L G Padilha, R S Machado, C H Souza , J G P Peixoto.
83	Development of an automated system based on the concept of evolutionary hardware to determine the optimal operating point of GMI sensors	J D B Mora and E C Silva.
84	Method based on computational intelligence techniques for localization of firearms projectiles inserted into the human body, by high sensitivity magnetic measurements	J D T Jimenez and E C Silva .



AUTHORS INDEX

Alfredo L F F, 9, 10
Aligleri L M, 9
Almeida M C M, 9
Almeida M F L, 11
Alvarez L, 9
Alves L S, 10, 11
Anjos W, 10
Aranha A S, 10
Araújo M C C, 9
Araújo M T F, 9
Arrieta C, 9
Azevedo F S, 12
Barbic S P, 11
Barbosa A P F, 11
Barbosa C R H, 9, 11
Batista F, 12
Belman-Hernández A-Y, 9, 10
Benson S, 9
Berkovich A E, 10
Blanco E A, 12
Boer A, 9, 12
Brahm A, 11
Bräuer-Burchardt C, 11
Broghammer J, 10
Buch B, 11
Cabral V, 12
Cacaís F L, 12
Calili R F, 9, 10, 11, 12
Cano S J, 11
Cardoso R S, 12
Castro C S C, 11
Celestre R, 10, 11
Cestari I A, 11
Chacon I T, 11
Coelho F B, 9
Cordeiro T D, 11
Costa C F, 9
Costa-Félix R P B, 10
Couto P R G, 11
Criollo L F R, 11
Cristea L, 9, 12
Cruz P A L, 9, 10, 11
Dashkina A I, 11
Delgado J U, 9, 10, 12
Diaz H, 10
Dittrich P-G, 10, 11
Fabbriani L F, 10
Faller L M, 9
Faria A C D, 10
Farias M H, 11
Farias R F, 10
Fernández-Torres A-G, 9, 10
Ferreira F, 10, 12
Fisher Jr W P, 9, 10, 11, 12
Fontul S, 12
Fortaleza L G S, 9, 11
Freire A, 12
Fütterer R, 11
Garção W J L, 9, 11
Garcia D A, 11
Gataulin Y A, 10
Golomoz A, 11
Gomes L L, 10
Gordiyenko T, 12
Gouveia J M G, 10, 11
Gouveia R, 9, 11
Granjeiro J M, 10, 11
Griffin P, 12
Guerra H, 12
Guerra L O, 10
Guimarães N A, 9, 11
Gusmão L A P, 9, 11
Heist S, 11
Hofmann D, 10
Illmann R, 11
Isnard A A, 9
Iwahara A, 11
Jackson S O, 11
Jimenez J D T, 12
Kapitsin D R, 9
Karpenko I, 12
Karpenko S, 12
Kästner M, 11
Kaverzneva T T, 9
Kühmstedt P, 11
Kyriazis G A, 10
Lemos Júnior L C, 10
Lima A M N, 11, 12
Loayza V M, 12
Loftfield N, 11



Lopes A F F, 9
Lopes J M, 11
Lopes R T, 9, 10
Loureiro J S, 11
Louzada D R, 11
Luculescu M C, 9, 12
Lyra R M, 11
Machado R S, 12
Magalhães D P, 9
Maia A, 12
Marcelo R M, 11
Margotti E, 11
Margull R, 10
Martins L, 12
Marxer M, 10
Mathias S, 11
Mattos R A, 10
Melo P L, 9, 10
Melo T R, 11
Mesquita Júnior J A, 9
Monteiro E C, 9, 11
Mora J D B, 12
Moraes J C, 10
Neff H, 12
Neri J, 10
Neves C S, 9
Nguyen C, 12
Notni G, 10, 11
Nunes L L, 11
Oliveira A L M, 11
Oliveira D G, 9
Oliveira D P, 10
Oliveira E C, 9
Oliveira L C, 12
Oliveira N V, 9, 10
Oon E P-T, 9
Orlando A F, 9
Ortega F M, 12
Padilha L G, 12
Pantoja A V, 12
Paulo L S F, 11
Peixoto J G P, 12
Pendrill L R, 11
Pereira R G, 10
Pereira W C A, 10
Pinheiro G R C, 10
Poledna R, 9
Preissler M, 10
Purata-Sifuentes O-J, 9, 10

Rangel J, 9
Reis Junior J P, 11
Reis M L C C, 9, 10
Reithmeier E, 11
Ribeiro A, 12
Ribeiro L, 12
Roberta S N, 11
Rocha L, 10
Rocha Neto J S, 10, 11
Rodrigues E P, 12
Rodrigues Filho B A, 10, 11
Rosenberger M, 10, 11
Rosendahl M, 10, 11
Ruzzarin A, 11
Sánchez C E G, 12
Santana R G, 9
Santo Filho D M, 10, 11
Santos F, 9, 11
Santos Junior J J P, 10, 11
Santos M H N, 9
Savio E, 10
Silva A X, 11
Silva C J, 9, 11
Silva E, 11
Silva E C, 9, 11, 12
Silva J, 9, 11
Silva J A, 9
Silva J J, 10
Silva Júnior E P, 9
Silva R L, 9
Sinitsyna D E, 10
Smirnov E M, 10
Soratto A N, 11
Sousa D L, 11
Sousa J A, 12
Sousa T A T, 12
Souto C d'A, 10
Souza C H, 12
Souza M S, 9
Souza R C, 9
Stenner A J, 10, 12
Stone M H, 12
Tarhov D A, 10
Tarkhov D A, 9, 11
Tauhata L, 11
Tauil L M, 10
Teixeira G J, 12
Teixeira R S, 11
Tereshin V A, 9



Theodoro F R F, 10
Trindade O L, 9
Velázquez D R T, 11
Velychko O, 12
Veras E V, 9
Vieira R S, 10
Villanueva J, 9, 11
Vinokhodov T V, 9
Votyakov P, 11

Wajnsztajn R, 9
Walmir S S, 11
Wu M, 12
Yukhnev A D, 10
Zamfira S C, 9, 12
Zangl H, 9
Zhang C, 10
Zulkarnay I U, 9, 11