

6TH WORLD CONGRESS ON CIVIL, STRUCTURAL, AND ENVIRONMENTAL ENGINEERING (CSEE'21)

June 21, 2021 - June 23 Lisbon, Portugal | Virtual Conference

10:00 AM - 12:00 PM

Registrations

CSEE'21 Scientific Committee Chair



Prof. Hany El Naggar

Dalhousie University, Canada Congress Chair



View Profile



Dr. Joaquim Barros

Institute for Sustainability and Innovation in Structural Engineering, University of Minho, Portugal Congress Co-Chair View Profile

8:00 AM - 9:00 AM	Registrations
9:00 AM - 9:10 AM	Official Opening
	Dr. Hany El Naggar, Dalhousie University, Canada
9:10 AM - 09:55 AM	KEYNOTE LECTURE
	Seismic Risk Assessment for Earth Slopes and Dams Dr. Ellen Rathje, University of Texas at Austin, USA
09:55 AM - 10:40 AM	KEYNOTE LECTURE
	In Situ Bioremediation of Contaminated Soil and Ground Water; Lab Optimization Leads to Functional Combinations at Field Sites Dr. Martin Romantschuk, University of Helsinki, Finland
10:40 AM - 10:45 AM	Break

10:45 AM - 11:30 AM	SESSION GEOTECHNICAL INFRASTRUCTURE I
11:30 AM - 11:35 AM	BREAK
11:35 AM - 12:20 PM	SESSION GEOENVIRONMENTAL RESEARCH
12:20 PM - 12:30 PM	SESSION BIOTECHNOLOGY AND ENVIRONMENT
12:30 PM - 12:50 PM	Lunch Break
12:50 PM - 01:35 PM	KEYNOTE LECTURE
	The Behaviour of a Structure within a Cluster of Structures in Earthquakes Dr. Nawawi Chouw, University of Auckland, New Zealand
01:35 PM - 02:20 PM	Smaller Than Expected Benefit of COVID-19 Lockdown on Urban Air Quality Dr. Zongbo Shi, University of Birmingham, UK
02:20 PM - 02:25 PM	BREAK
02:25 PM – 03:25 PM	SESSION COMPOSITES AND CONSTRUCTION
03:25 PM - 03:30 PM	BREAK
03:30 PM - 04:00 PM	SESSION SOIL POLLUTION AND TREATMENT

JUNE 22 | 9:10 AM - 09:55 AM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA



Titles: Seismic Risk Assessment for Earth Slopes and Dams <u>Dr. Ellen Rathje, University of Texas at</u> <u>Austin, USA</u>

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Dr. Ellen M. Rathje is the Janet S. Cockrell Centennial Chair in Engineering in the Department of Civil, Architectural, and Environmental Engineering at the University of Texas at Austin (UT), and Senior Research Scientist at the UT Bureau of Economic Geology. She has expertise in the areas of geotechnical earthquake engineering, engineering seismology, induced seismicity, field reconnaissance after earthquakes, and remote sensing. Dr. Rathje is the Principal Investigator for the DesignSafe-ci.org cyberinfrastructure for the NSF-funded Natural Hazards Engineering Research Infrastructure (NHERI). She has been honored with various research awards, including the 2018 William B. Joyner Lecture Award from the Seismological Society of America and the 2010 Huber Research Prize from the American Society of Civil Engineers. She was elected Fellow of the American Society of Civil Engineers in 2016.

JUNE 22 | 09:55 AM - 10:40 AM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA



Titles: In Situ Bioremediation of Contaminated Soil and Ground Water; Lab Optimization Leads to Functional Combinations at Field Sites Dr. Martin Romantschuk University of Helsinki, Finland

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Prof. Martin Romantschuk received his PhD at the University of Helsinki in 1987. He is Professor of Environmental Biotechnology at University of Helsinki and now leads a research group of 8 scientists. The research deals with both basic and applied aspects of environmental biotechnology. One main research topic is soil bioremediation with particular emphasis on technology used in situ. He has supervised 26 PhD theses and published over 130 scientific articles in international scientific periodicals and a number of other scientific publications and book chapters. His WoS H-index is 36. He is a member of the Finnish Society of Sciences and Letters.

GEOTECHNICAL INFRASTRUCTURE I

JUNE 22 | 10:45 AM - 11:30 AM | DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA

Titles: Effect of Stage Compressive load on Single Pile Subjected to Time

Effect: A Numerical Investigation

ICGRE 301

Time: 10:45 - 11:00

Presenter: Kajal Tarenia, Indian Institute of Technology, India

Authors: Kajal Tarenia, Nihar Ranjan Patra, Rajesh Sathiyamoorthy, Apurba Mondal

Titles: Evolution of Transient Saturated Zones and Stability Analysis of

High Liquid Limit Red Clay Slope under Rainfall Conditions

ICGRE 137

Time: 11:00 - 11:15

Presenter: Xiang Qiu, Changsha University of Science & Technology, China

Authors: Xiang Qiu

Titles: Numerical Prediction of the Drying-Wetting Process in a River

Levee and Floodplain

ICGRE 111

Time: 11:15 - 11:30

Presenter: Chiara Rossignoli, Politecnico di Milano, Italy

Authors: Chiara Rossignoli, Donatella Sterpi

GEOENVIRONMENTAL RESEARCH

JUNE 22 | 11:35 AM- 12:20 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA

Titles: Geotechnical Risks through the use of Geographic Information System in the Urbanized Area of the Upper City of Antananarivo Madagascar

ICGRE 104

Time: 11:35 - 11:50

Presenter: Rajeshwar Goodary, Universite des Mascareignes, Mauritius

Authors: Miraniaina Andriamalala, Rajeshwar Goodary, Ratoarivelo Manitriniala

Titles: Temperature Profiles in a Typical River-Aquifer Interaction

Scenario

ICGRE 115

Time: 11:50 - 12:05

Presenter: José Antonio Jiménez-Valera, Technical University of Cartagena, Spain

Authors: José Antonio Jiménez-Valera, Francisco Alhama

Titles: Utilisation of Pervious Concrete for Removal of Heavy Metals in

Contaminated Waters: Opportunities and Challenges

ICEPTP 302

Time: 12:05 - 12:20

Presenter: Ayanda N. Shabalala, University of Mpumalanga, South Africa

Authors: Ayanda N. Shabalala

SESSION BIOTECHNOLOGY AND ENVIRONMENT

JUNE 22 | 12:20 PM - 12:30 PM | SESSION CHAIR: IKREMA ABDALLA HASSAN, TAIBAH UNIVERSITY, SAUDI ARABIA

Titles: Combined Heat and Drought Tolerance of Tomato Plants when

Treated with different Arbuscular Mycorrhizal Fungi

ICEPTP 101

Time: 12:20 - 12:25

Presenter: Institute of Genetics, Microbiology and Biotechnology Szent István

University, Hungary

Authors: Imane Haddidi, Bence Gajdics, Nguyen Hong Duc, Ktalin Posta

Titles: Biotechnological Recovery of Zinc from Low-Grade Sulfide

Concentrate during Two-Step Processing

ICEPTP 301

Time: 12:25 - 12:30

Presenter: Maxim Muravyov, Research Center of Biotechnology of the Russian

Academy of Sciences, Russia Authors: Maxim Muravyov

JUNE 22 | 12:50 PM - 01:35 PM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL



Titles: The Behaviour of a Structure within a Cluster of Structures in Earthquakes <u>Dr. Nawawi Chouw, University of Auckland, New Zealand</u>

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Dr Nawawi CHOUW is an Associate Professor and was Director of the University of Auckland Centre for Earthquake Engineering Research (2011-2017). Prior to joining the University of Auckland, he worked at universities in Germany, Japan and Australia. He gained his PhD in Civil Engineering from the Ruhr University Bochum in Germany. He has been awarded twice the Gledden Fellowship of the University of Western Australia, Fritz-Peter-Mueller Prize of the Technical University of Karlsruhe, Germany, the Best Research Award of Chugoku Denryoku Research Foundation, Japan, and received twice recognition for excellence in research supervision from Chinese Scholarship Council. He was invited by China Ministry of Education, NZ Ministry of Business, Innovation and Employment, Qatar Science Foundation, SA National Research Foundation, German Academic Exchange Service and by other European Research Institutions to assess applications and international standing of colleagues. He was also invited to teach at several universities in Europe, China and Japan. He was Guest Editor of a number of journals, e.g., Protective Structures, Soil Dynamics and Earthquake Engineering. He is editor of the international journal of Materials, Shock and Vibration and an associate editor of Frontiers in Build Environment — Earthquake Engineering and is an editorial board member of several international journals. He was a visiting and guest professor at several universities in China, Germany, Canada, Australia, Serbia, Macedonia and Japan.

JUNE 22 | 01:35 PM - 02:20 PM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL



Titles: Smaller Than Expected Benefit of COVID-19 Lockdown on Urban Air Quality <u>Dr. Zongbo Shi, University of Birmingham, UK</u>

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Zongbo Shi received his PhD from China University of Mining and Technology (Beijing). He worked in Tsinghua University, Prefectural University and University of Leeds as a research fellow before joining the University of Birmingham. He is currently a profess of Atmospheric Biogeochemistry. His group focuses on Sources and emissions of chemical substances to the atmosphere, physical and chemical transformation of aerosol particles and their constituents in the atmosphere, and the interaction of atmospheric chemistry with biogeochemistry of ecosystems.

COMPOSITES AND CONSTRUCTION

JUNE 22 | 2:25 PM - 03:25 PM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL & DR. RAJESHWAR GOODARY, UNIVERSITE DES MASCAREIGNES, MAURITIUS

Titles: Prioritizing Delay Causes in the Egyptian Building Construction

Projects

ICSECT 103

Time: 2:25 - 2:40

Presenter: Abobakr Al-Sakkaf, Hadhramout University Mukalla, Yemen

Authors: Nehal Elshaboury, Hassan Alaa, Abobakr Al-Sakkaf, Ghasan Alfalah, Eslam

Mohammed Abdelkader

Titles: On the Implementation of Machine Learning Models for

Emulating Daily Electricity Consumption in Hotel Facilities

ICSECT 104

Time: 2:40 - 2:55

Presenter: Abobakr Al-Sakkaf, Hadhramout University Mukalla, Yemen

Authors: Eslam Mohammed Abdelkader, Abobakr Al-Sakkaf, Nehal Elshaboury,

Ghasan Alfalah4

Titles: Use of Artificial Neural Networks for Prediction of Properties of

Self-Sensing Concrete

ICSECT 106

Time: 2:55 - 3:10

Presenter: Sofija Kekez, Silesian University of Technology, Poland

Authors: Sofija Kekez

Titles: A Comparative Study of Al2O3, ZnO and Bentonite Effect on

Structural Grade Mortar

ICSECT 109

Time: 3:10 - 3:25

Presenter: Adewumi John Babafemi, Stellenbosch University, South Africa Authors: Suvash Chandra Paul, Adewumi John Babafemi, Md Jihad Miah

SESSION SOIL POLLUTION AND TREATMENT

JUNE 22 | 3:30 PM - 4:00 PM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL

Titles: Applications of Electrokinetic Remediation in Environmental

Restoration

ICEPTP 103

Time: 3:30 - 3:45

Presenter: Ikrema Hassan, Taibah University, Saudi Arabia

Authors: Ikrema Hassan

Titles: Use of Plant Bioassays for Assessing Mine Tailings Rehabilitation

Strategies

ICEPTP 107

Time: 3:45 - 4:00

Presenter: Mariagrazia Proto, University of Limerick, Limerick

Authors: Mariagrazia Proto, Ronan Courtney

9:00 AM - 10:00 AM	ICEPTP PLENARY LECTURE
	Superhydrophobic and Oleophilic Polymeric Open Cellular Foams for Efficient Oil/Water Separation Dr. Chul B. Park, University of Toronto, Canada
10:00 AM - 10:45 AM	ICGRE KEYNOTE LECTURE
	Engineering Applications of Distributed Fiber Optic Sensing Arrays Dr. Dante Fratta, University of Wisconsin- Madison, USA
10:45 AM - 10:50 AM	BREAK
10:50 AM- 11:40 AM	SESSION Geotechnical Infrastructure II
11:40 AM - 11:45 AM	BREAK
11:45 AM - 01:00 PM	SESSION Soil and Rock Mechanics and Characterization

01:00 PM - 01:20 PM	LUNCH BREAK
01:20 PM - 02:05 PM	ICSECT KEYNOTE LECTURE
	Characterization and Mechanism Analysis of Alkali-Silica Reaction in Cementitious Materials Dr. Qingli Dai, Michigan Technological University, USA
02:05PM - 02:50 PM	ICGRE KEYNOTE LECTURE
	From Physical Measurements to Design Codes for MSE Walls Dr. Richard J. Bathurst, Royal Military College of Canada, Canada
02:50 PM - 02:55 PM	BREAK
02:55 PM - 03:40 PM	SESSION Modelling and Simulation
03:40 PM - 04:00 PM	SESSION Air Pollution and Treatment

PLENARY LECTURE

JUNE 23 | 9:00 AM - 10:00 AM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL



Superhydrophobic and Oleophilic Polymeric Open Cellular Foams for Efficient Oil/Water Separation Dr. Chul B. Park, University of Toronto, Canada

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Prof Chul Park received his PhD from MIT in 1993. He is Distinguished Professor of Microcellular Engineered Plastics at University of Toronto. He is also the NSERC Senior Industrial Research Chair in Multi-Functional Graphene-Based Polymer Nanocomposites and Foams. He has an international recognition in polymer foam area. He has published more than 1400 papers, including over 400 journal papers and four books with 75 Scopus H-index. Prof Park serves as Editor-in-Chief for Journal of Cellular Plastics. He has been inducted into 5 academies as an Academician Fellow. He is also a fellow of 5 other professional societies including Society of Plastics Engineers.

JUNE 23 | 10:00 AM - 10:45 AM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL



Titles: Engineering Applications of Distributed Fiber Optic Sensing Arrays

Dr. Dante Fratta, University of Wisconsin-Madison, USA

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Dante Fratta graduated with a Ph.D. from Georgia Tech in 1999. He is currently a faculty member in Geological Engineering and Civil & Environmental Engineering at the University of Wisconsin-Madison, where he teaches Soil Mechanics, Applied Geophysics, and advanced courses in Wave Propagation in Geomaterials and Engineering Behavior of Soils. Dante's research interests include Near Surface Geophysics and Experimental Geotechnical Engineering. For the last ten years, Dante has been collecting, analyzing, and interpreting distributed optic sensing data to monitor the near subsurface.

GEOTECHNICAL INFRASTRUCTURE II

JUNE 23 | 10:50 AM - 11:40 PM | SESSION CHAIR: DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL

Titles: Study of the Influence of Sheet Pile Location under Dams on

Groundwater Flow and Pore Pressure with Network Method

ICGRE 112

Time: 10:50 - 11:05

Presenter: Encarnación Martínez-Moreno, Technical University of Cartagena, Spain

Authors: Encarnación Martínez-Moreno, Gonzalo García-Ros, Iván Alhama

Titles: Effect of Deep Excavations on Adjacent Structures and

Importance of Deep Excavation Support

ICGRE 110

Time: 11:05 - 11:20

Presenter: Nagham Ghamraoui, Beirut Arab University, Lebanon

Authors: Nagham Ghamraoui, Diala Tabbal

Titles: A Study of the Influence of Water Content Profile on the

Dynamic Behavior of Rammed Earth Structures

ICGRE 103

Time: 11:20 - 11:25

Presenter: Juan P. Villacreses, Universidad de los Andes, Colombia

Authors: Juan P. Villacreses, Bernardo Caicedo, Felipe Poveda, Fabricio Yepez,

Laura Ibagón, Julián Buriticá

Titles: Validation of Correlation Factor between Es and Qc Using Load

Tests

ICGRE 102

Time: 11:25 - 11:40

Presenter: Omar El Khaled, Saudi Aramco, Saudi Arabia

Authors: Omar El Khaled, Emmanouil Spyropoulos, Abdulrahman Alnaim

SOIL AND ROCK MECHANICS AND CHARACTERIZATION

JUNE 23 | 11:45 PM - 12:55 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA AND DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL

Titles: Geo-electrical Evaluation of Compacted Sand-Bentonite Mix

Characteristics

ICGRE 109

Time: 11:45 - 12:00

Presenter: Vaishali Wayal, Indian Institute of Science, Bangalore, India

Authors: Vaishali Wayal, T.G. Sitharam, Gali Madhavi Latha

Titles: Material Modelling of Pare rock mass by Finite Element Back

Calculation Technique

ICGRE 116

Time: 12:00 - 12:15

Presenter: Pawan Kumar Singh, Assam Engineering College, India

Authors: Pawan Kumar Singh, Diganta Goswami, Ranjeet Bahadur Singh, Pragati

Goswami, Sylvia Kashyap

Titles: Effect of Grain Size Distribution on Drained Shear Behavior of

Poorly Graded Sand

ICGRE 108

Time: 12:15 - 12:30

Presenter: Tong Yu, Université Paris Saclay, France

Authors: Tong Yu, Hanène Souli, Yoan Péchaud, Jean-Marie Fleureau

Titles: Improving the Properties of Soft Soils using Nano-silica, Slag,

and Cement

ICGRE 101

Time: 12:30 - 12:45

Presenter: A. Eissa, University of Manitoba, Canada

Authors: A. Eissa, A. Ghazy2, M. T. Bassuoni, and M. Alfaro

SOIL AND ROCK MECHANICS AND CHARACTERIZATION

JUNE 23 | 11:45 PM - 12:55 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA AND DR. JOAQUIM BARROS, UNIVERSITY OF MINHO, PORTUGAL

Titles: An Experimental Approach of a Driven Pile in Transparent Soils

ICGRE 302

Time: 12:45 - 01:00

Presenter: Laura Ibagón, Universidad de los Andes, Colombia

Authors: Laura Ibagón

JUNE 23 | 1:20 PM - 2:05 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA



Titles: Characterization and Mechanism Analysis of Alkali-Silica Reaction in Cementitious Materials

<u>Dr. Qingli Dai, Michigan Technological University, USA</u>

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Dr. Qingli Dai is a professor in the Department of Civil and Environmental Engineering at Michigan Tech. Dr. Dai's primary professional and scholarly contributions have dealt with material design, characterization, test and analysis for sustainable civil infrastructure applications. She has published over 160 technical papers including about 100 journal articles and other 60+ conference papers. Dr. Dai has been a Principle Investigator of several research projects funded by US National Science Foundation and Michigan Department of Environmental Quality. Other sponsors of her research program include State Department of Transportation and Michigan Space Grant Consortium. Dr. Dai received 2017 Best Paper Award for the ASCE Journal of Aerospace Engineering. Dr. Dai is an associate editor for ASCE Journal of Materials in Civil Engineering since November 2011. She is a member of ASCE granular material committee, bitumen committee, pavement committee, and geophysics committee. She is also a member of ACI committee 201,236 and 555.

JUNE 23 | 2:05 PM - 2:50 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA



Titles: From Physical Measurements to Design Codes for MSE Walls

<u>Dr. Richard J. Bathurst, Royal Military</u>

<u>College of Canada, Canada</u>

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Dr. Bathurst (P. Eng., Ph.D., FRSC, FEIC, FCAE) is Professor Emeritus of Civil Engineering at the Royal Military College of Canada where he has taught since 1980. He is a Past-President of the Engineering Institute of Canada, the Canadian Geotechnical Society (CGS) and the International Geosynthetics Society. Dr. Bathurst has authored or co-authored more than 450 papers in referred journals, conference proceedings and research monographs. He has made contributions in the areas of micromechanics of granular soils, railway ballast and track dynamics, pavements, unsaturated soil-geotextile behaviour, constitutive modelling of geosynthetic soil reinforcement materials and systems, new test methods and the development of transparent granular soil surrogates for geotechnical laboratory-scale testing.

Dr. Bathurst's primary research activities are focused on the use of geosynthetic and metallic reinforcement in earth retaining wall systems, numerical modelling, seismic performance and design of these systems, probabilistic design of reinforced and unreinforced soil structures, reliability-based design, load and resistance factor design (LRFD) calibration of soil-structures, and LRFD code development.

Dr. Bathurst is editor of the peer-reviewed technical journal Geosynthetics International, published by the Institute of Civil Engineers in the UK, and associate editor of the International Journal of Geomechanics published by the ASCE.

MODELLING AND SIMULATION

JUNE 23 | 2:55 PM - 03:40 PM | SESSION CHAIR: DR. HANY EL NAGGAR, DALHOUSIE UNIVERSITY, CANADA

Titles: Numerical Progressive Collapse Analysis of RC Framed Structures

ICSECT 105

Time: 2:55- 3:10

Presenter: Bilal El-Ariss, United Arab Emirates University, UAE

Authors: Ahmad Shehada, Said Elkholy, Bilal El-Ariss

Titles: Effect of Beam Design on Progressive Collapse Resistance of RC

Framed Structures

ICSECT 110

Time: 3:10 - 3:25

Presenter: Bilal El-Ariss, United Arab Emirates University, UAE

Authors: Said Elkholy, Ahmad Shehada, Bilal El-Ariss

Titles: Geometric Constraints and Dynamic Behavior of a Deployable

ICSECT 201

Time: 3:25 - 3:40

Presenter: Mariano Molina Iniesta, San Pablo CEU University, Spain

Authors: Fernando del Ama Gonzalo, M. Isabel Castilla Heredia, F. Hernando Mansilla, Dolores Gómez Pulido, J. Carlos Sancho Arellano, Covadonga Lorenzo

Cueva, Juan García Millan

AIR POLLUTION AND TREATMENT

JUNE 23 | 3:40 PM - 04:00 PM | SESSION CHAIR: IKREMA ABDALLA HASSAN, TAIBAH UNIVERSITY, SAUDI ARABIA

Titles: Evaluating Predicting Aerosol PM10 Concentrations with the

WRF-Chem Model, in Lima, in February 2018

ICEPTP 105

Time: 03:40 - 03:55

Presenter: Odón Sánchez-Ccoyllo, Universidad Nacional Tecnológica de Lima Sur,

Peru

Authors: Odón Sánchez-Ccoyllo, Alan Llacza, Paula Castesana

Titles: From Heavy Fuel Oil to Liquified Natural Gas: Electricity

Generation Transition in Malta

ICEPTP 106

Time: 03:55 - 04:00

Presenter: Nirvana Avellino, Institute of Applied Sciences - MCAST, Malta

Authors: Nirvana Avellino, Juan José Bonello