



**Program for the ICMI Symposium on:
Mathematics Education and the Socio-Ecological
20th March 2023 (GMT)**

Symposium 1 (09.30-15.10 GMT)

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| 09.30-09.35 GMT | Welcome | Alf Coles and Kate le Roux | | | | |
| 09.35-11.00 GMT | Opening plenary panel | Jodie Hunter, Professor of Mathematics Education, Institute of Education, Massey University, New Zealand Berinderjeet Kaur, Professor of Mathematics Education, National Institute of Education, Nanyang Technological University, Singapore Lara Lalemi, Chief Executive Officer of Creative Tuition Ltd., United Kingdom Jeff Murugan, Professor of Mathematical Physics, Department of Mathematics & Applied Mathematics, University of Cape Town, South Africa | | | | |
| 11.20-12.10 GMT | Research Reports/ Posters | Session A | Session B | Session C | Session D | Session E |
| | | Trude Fosse & Kjellrun Hiis Hauge MATHEMATICS AND SUSTAINABILITY IN AN INTERDISCIPLINARY PROJECT | Duano Sapt Nusantara, Zulkardi and Ratu Ilma Indra Putri DESIGNING A LEARNING ENVIRONMENT USING PISACOMAT (PISA-MATHEMATICS-COVID19) FOR SECONDARY SCHOOL | João Ricardo Viola dos Santos TOWARD MATHEMATICS EDUCATION ON THE ANTHROPOCENE | Adriana Atenea de la Cruz Ramos, Miguel Solís Esquinca & Francisco Cordero Osorio THE MODELING OF INFILTRATION PHENOMENA IN THE COMMUNITY OF CIVIL ENGINEERS IN TRAINING | Jimbo Juanito B. Villamor & Catherine P. Vistro-Yu ENGAGING HIGH SCHOOL STUDENTS IN MATHEMATICAL MODELLING FOR CRITICAL CITIZENSHIP |
| | | Mark Boylan TRANSFORMATIVE PROFESSIONAL LEARNING FOR SOCIO-ECOLOGICAL | Vince Geiger, Iddo Gal & Mellony Graven CITIZENSHIP AND MATHEMATICS EDUCATION | Anna Chronaki & Ulrika Ryan TOWARDS DIVERSE ECOLOGIES OF KNOWLEDGE: OPENING 'EPISTEMOLOGIES OF THE | Chidumebi Idemili & Rachel Gisewhite MATHEMATICAL MODELLING OF THE EFFECT OF CLIMATE CHANGE ON | Frankie A. Fran and Catherine P. Vistro-Yu MATHEMATICAL KNOWLEDGE STRUCTURES OF SOCIO-CULTURAL |

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| | | ACTIVISM IN MATHEMATICS EDUCATION | IN A TIME OF DISRUPTIVE EVENTS | SOUTH' FOR MATHEMATICS TEACHER EDUCATION AT THE PERIPHERIES OF EUROPE | THE SPREAD OF MALARIA IN NIGERIA AS A CASE TO ENHANCE MATHEMATICS LEARNING AND SOCIOECOLOGICAL ENGAGEMENT FOR HIGH SCHOOL STUDENTS | COMMUNITIES: THE CASE OF SIBUYAN MANGYAN TAGABUKID |
| 12.30-13.20 GMT | Research Reports/ Poster | Session F | Session G | Session H | Session I | Session J |
| | | Christian Büscher CLI.MATH –FOSTERING REFLECTION OF DATA-BASED ARGUMENTATIONS ON CLIMATE CHANGE IN MIDDLE SCHOOLS | Wanty Widjaja, Colleen Vale, Amanda Berry, Jan van Driel, Lihua Xu, Joe Ferguson & Gahyoung Kim EXAMINING SOCIO-ECOLOGICAL FACTORS THAT INFLUENCE TEACHERS' ADAPTIVE EXPERTISE IN INTERDISCIPLINARY MATHEMATICS AND SCIENCE IN PRIMARY EDUCATION | Magnus Ödmo, Anna Chronaki & Lisa Björklund Boistrup A TEACHER EDUCATION COURSE ON CLIMATE CHANGE AND CRITICAL MATHEMATICS EDUCATION | Lisa Steffensen MATHEMATICS EDUCATORS SUPPORTING PRE-SERVICE TEACHERS TO ENGAGE STUDENTS IN ENVIRONMENTAL SUSTAINABILITY | Avinash Sharma EPISTEMIC CULTURE OF CLIMATE MODELLING |
| | | David Wagner TRANSFORMING THE CULTURE OF MATHEMATICS EDUCATION RESEARCH TO EMBRACE SUSTAINABILITY VALUES | Pratap Ganesan, Saranya Bharathi and Muralidharan Aswathaman, Vasantharaj Gandhi & Sanjeev Ranganathan BREAKING SILOS THROUGH STREAM EDUCATION AND USING THE WISDOM PROFILE TO ENGAGE WITH CULTURE | Alf Coles, Richard Barwell & Mark Boylan RESPONSIBILITY AND ANSWERABILITY: MATHEMATICS EDUCATION AND THE LIVING WORLD, A DIALOGIC RESPONSE TO A GLOBAL CRISIS | Art Walden A. Dejoras & Catherine P. Vistro-Yu EXPLORING PROSPECTIVE MATHEMATICS TEACHERS' MATHEMATICAL PROFICIENCY, CRITICAL CITIZENSHIP, AND TRANSLANGUAGING IN A SOCIAL-ISSUE-THEMED MATHEMATICS COURSE | Simon Modeste & Sonia Yvain Prébiski COLLABORATIVE PROBLEM SOLVING BETWEEN CLASSES AS A WAY TO TEACH AND LEARN MODELING: THE RESCO PROJECT |
| 14.00-15.10 GMT | Plenary Talk | Willy Alangui, University of the Philippines Baguio, <u>College of Science</u> , Philippines Armando Solares-Rojas, Mathematics Education Department, CINVESTAV, Mexico Discussant: Rochelle Gutiérrez, University of Illinois, United States of America | | | | |

Symposium 2 (14.00-19.30 GMT)

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| 14.00-15.10 GMT | Plenary Talk | Willy Alangui, University of the Philippines Baguio, <u>College of Science</u> , Philippines Armando Solares-Rojas, Mathematics Education Department, CINVESTAV, Mexico Discussant: Rochelle Gutiérrez, University of Illinois, United States of America | | | | |
| 15.30-16.20 GMT | Research Reports/ Posters | Session A | Session B | Session C | Session D | Session E |
| | | Marie Brehm & Angelika Bikner-Ahsbals | Eirini Lazaridou & Anna Chronaki | Richard Barwell | Steven Eduardo Quesada Segura & Milton Rosa | Steve Watson |
| | | “THE TIMES THEY ARE A- CHANGING”: A NEED TO DEVELOP RISK LITERACY | IN THE QUEST FOR JUSTICE: A PEDAGOGICAL EXPERIMENTATION WITH MATHEMATICS AND THE COMMONS IN EARLY CHILDHOOD EDUCATION | WHO’S AFRAID OF THE BIG BAD WOLF? HOW MATHEMATICS MEDIATES OUR RELATIONSHIPS WITH OTHER SPECIES AND SOME IMPLICATIONS FOR EDUCATION AND RESEARCH | ETHNOMODELLING OF A DANCE PALO DE MAYO IN COSTA RICA | A PHENOMENOLOGICAL SYSTEMS APPROACH TO THE SOCIO-ECOLOGICAL IN MATHEMATICS EDUCATION |
| Enrique Martínez- Jiménez, Natividad Adamuz-Povedano, Elvira Fernández-Ahumada, Silvia Medina-Quintana & María Ángeles Olivares- García | Daniela Steflitsch & Katrin Kanatschnig | Salvador Huitzilopochtli, Julianne Foxworthy Gonzalez & Judit Moschkovich | Grace A. Chen & Nadav Ehrenfeld | Yasmine Abtahi | | |
| PROBABILITY EDUCATION AGAINST YOUTH GAMBLING ADDICTION | HOW THIRSTY IS OUR FOOD? EXPERIENCES OF A HIGH SCHOOL TEACHER DEALING WITH ENVIRONMENTAL TOPICS IN THE MATHEMATICS CLASSROOM | NOTICING MULTILINGUAL AND NON-DOMINANT STUDENTS’ STRENGTHS FOR LEARNING MATHEMATICS | WHERE (OR WHO) IS THE MATHEMATICS IN SOCIO- ECOLOGICAL MATHEMATICS EDUCATION RESEARCH? | EPISTEMOLOGICAL THOUGHTS: MATHEMATICS EDUCATION TO SUSTAIN THE COMMONS | | |

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| 16.40-17.30 GMT | Research Reports/ Poster | Session F | Session G | Session H | Session I | Session J |
| | | Alistair Bissell, Elliot Malkin & Alf Coles CAN TEACHING MATHEMATICS CONTRIBUTE TOWARDS AWARENESS AND ACTION FOR SUSTAINABLE, JUST FUTURES? | Peter Appelbaum THE MAGICAL ECOLOGY OF MATHEMATICS: A GRAND ABSTRACTION FOR RECONNECTING OUR BODIES TO OUR ENVIRONMENT | Stheven Rodríguez & Francisco Cordero USING MIDDLE SCHOOL MATH TO MANAGE RAINWATER | Olga Fellus, Viktor Freiman, Xavier Robichaud & Jacob Lingley A RAY OF HOPE IN THE SOCIO-ECOLOGICAL TURN IN MATHEMATICS EDUCATION-WHAT DOES IT TAKE FOR GRADE-3 STUDENTS TO BUILD A VILLAGE? THE NEW BRUNSWICK CONTEXT | Heather Lynn Johnson, Courtney Donovan, Robert Knurek, Kristin Whitmore & Livvia Bechtold A LINK BETWEEN STUDENTS' GRAPH REASONING AND THEIR ATTITUDES TOWARD MATHEMATICS AND GRAPHS |
| | | Marcelo de Carvalho Borba & Fernanda Martins da Silva SOCIO-ECOLOGICAL POSSIBILITIES IN VIDEO PRODUCTION BY MATHEMATICS TEACHER AND STUDENTS | Tracy Helliwell, Lauren Hennessy & Karl Bushnell BECOMING A MATHEMATICS TEACHER FOR CLIMATE JUSTICE | Eleany Barrios Borges & Francisco Cordero THE CLIMATE IS CHANGING. AND WHAT ABOUT MATHEMATICS EDUCATION? | Lara Gildehaus CIVIMATICS – INSIGHTS OF AN INTERDISCIPLINARY APPROACH TOWARDS MATHEMATICAL MODELLING | Tatiana Mendoza von der Borch MAPS FOR UNDERSTANDING EXPERIENCE: CHILDREN'S SPATIAL DESCRIPTIONS OF THEIR CRITICALLY POLLUTED ENVIRONMENT |
| 18.00-19.25 GMT | Closing plenary panel | Omar Arellano, Professor, Department of Ecology and Natural Resources, Universidad Nacional Autónoma, Mexico Elizabeth de Freitas, Professor, Manhattan Institute for Studies of STEM and the Imagination (MIXI), School of Education, Adelphi University, United States of America Mariam Makramalla, Assistant Professor of Mathematics Education, University of New Giza, Faculty of Engineering, Egypt Mogens Niss, Emeritus Professor of Mathematics and Mathematics Education, Roskilde University, Denmark | | | | |
| 19.25-19.30 GMT | Closing words | Alf Coles and Kate le Roux | | | | |