



International Commission on
Mathematical Instruction

**FINAL Announcement and Programme for the ICMI Symposium on:
*Mathematics Education and the Socio-Ecological***

ICMI is hosting a one-day *online* symposium on **20th March 2023 (GMT)**, to act as a gathering point for scholars working in what might be diverse areas, but whose concerns could be broadly grouped together as “socio-ecological”. The aims of the symposium are as follows:

- To gather the “state of the art” of socio-ecological research from around the world and engage in dialogue across perspectives.
- To explore the different ways in which a theorisation of the socio-ecological influences the focus and methodological approach of mathematics education research.
- To consider practical implications of socio-ecological research for school/university curriculum and pedagogy, education outside formal structures, teacher preparation, and policy.

To cater for participants in different time zones, two symposia are being held, with an overlapping Plenary talk; see details on the next 4 pages. (Please note, in some parts of the world, symposium timings will cross two dates; **the timings below are for 20th March, with respect to GMT**. We have chosen GMT as the reference point, because the Symposium zoom rooms are being hosted in the United Kingdom; we apologise for only showing that time zone, this has partly been to avoid possible confusions about the date.)

The symposia promise to be exciting occasions, with 40 presentations, 3 plenary events and, currently, over 200 people signed up to attend. Please come along and, also, advertise this call among your networks!

Attendance at the symposium is free, but you do need to register. **Register for the symposium** below.

Symposium 1: <https://www.eventbrite.com/e/icmi-socioecological-symposium-schedule1-tickets-513876788307>

Symposium 2: <https://www.eventbrite.com/e/icmi-socioecological-symposium-schedule-2-tickets-513908984607>

This symposium is a collaborative initiative, with the kind support of ICMI, involving Kate le Roux, Alf Coles, Richard Barwell, Marcelo Borba, Anna Chronaki, Rochelle Gutiérrez, Mariam Makramalla, Aldo Parra, Milton Rosa, Armando Solares-Rojas, Jayasree Subramanian and Lauren Hennessy.

Symposium 1 (09.30-15.10 GMT)

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 ACTIVISM IN MATHEMATICS EDUCATION	Vince Geiger, Iddo Gal & Mellony Graven CITIZENSHIP AND MATHEMATICS EDUCATION IN A TIME OF DISRUPTIVE EVENTS	Anna Chronaki & Ulrika Ryan TOWARDS DIVERSE ECOLOGIES OF KNOWLEDGE: OPENING 'EPISTEMOLOGIES OF THE SOUTH' FOR MATHEMATICS TEACHER EDUCATION AT THE PERIPHERIES OF EUROPE	Chidumebi Idemili & Rachel Gisewhite MATHEMATICAL MODELLING OF THE EFFECT OF CLIMATE CHANGE ON THE SPREAD OF MALARIA IN NIGERIA AS A CASE TO ENHANCE MATHEMATICS LEARNING AND SOCIOECOLOGICAL ENGAGEMENT FOR HIGH SCHOOL STUDENTS	Frankie A. Fran and Catherine P. Vistro-Yu MATHEMATICAL KNOWLEDGE STRUCTURES OF SOCIO-CULTURAL COMMUNITIES: THE CASE OF SIBUYAN MANGYAN TAGABUKID

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

Symposium 2 (14.00-19.30 GMT)

14.00-15.10 GMT	Plenary Talk	Willy Alangui, Professor, University of the Philippines Baguio, College of Science, Philippines Armando Solares-Rojas, Mathematics Education Department, CINVESTAV, Mexico Discussant: Rochelle Gutiérrez, Professor, Curriculum and Instruction, 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		

16.40-17.30 GMT	Research Reports/ Poster	<p>Session F</p> <p>Alistair Bissell, Elliot Malkin & Alf Coles</p> <p>CAN TEACHING MATHEMATICS CONTRIBUTE TOWARDS AWARENESS AND ACTION FOR SUSTAINABLE, JUST FUTURES?</p>	<p>Session G</p> <p>Peter Appelbaum</p> <p>THE MAGICAL ECOLOGY OF MATHEMATICS: A GRAND ABSTRACTION FOR RECONNECTING OUR BODIES TO OUR ENVIRONMENT</p>	<p>Session H</p> <p>Stheven Rodríguez & Francisco Cordero</p> <p>USING MIDDLE SCHOOL MATH TO MANAGE RAINWATER</p>	<p>Session I</p> <p>Olga Fellus, Viktor Freiman, Xavier Robichaud & Jacob Lingley</p> <p>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</p>	<p>Session J</p> <p>Heather Lynn Johnson, Courtney Donovan, Robert Knurek, Kristin Whitmore & Livvia Bechtold</p> <p>A LINK BETWEEN STUDENTS' GRAPH REASONING AND THEIR ATTITUDES TOWARD MATHEMATICS AND GRAPHS</p>
		<p>Marcelo de Carvalho Borba & Fernanda Martins da Silva</p> <p>SOCIO-ECOLOGICAL POSSIBILITIES IN VIDEO PRODUCTION BY MATHEMATICS TEACHER AND STUDENTS</p>	<p>Tracy Helliwell, Lauren Hennessy & Karl Bushnell</p> <p>BECOMING A MATHEMATICS TEACHER FOR CLIMATE JUSTICE</p>	<p>Eleany Barrios Borges & Francisco Cordero</p> <p>THE CLIMATE IS CHANGING. AND WHAT ABOUT MATHEMATICS EDUCATION?</p>	<p>Lara Gildehaus</p> <p>CIVIMATICS – INSIGHTS OF AN INTERDISCIPLINARY APPROACH TOWARDS MATHEMATICAL MODELLING</p>	<p>Tatiana Mendoza von der Borch</p> <p>MAPS FOR UNDERSTANDING EXPERIENCE: CHILDREN'S SPATIAL DESCRIPTIONS OF THEIR CRITICALLY POLLUTED ENVIRONMENT</p>
18.00-19.25 GMT	Closing plenary panel	<p>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</p>				
19.25-19.30 GMT	Closing words	Alf Coles and Kate le Roux				