



### 9TH INTERNATIONAL CONFERENCE ON APPROPRIATE TECHNOLOGY

NOVEMBER 23 - 27, 2020

Technology Exchange and Employment Creation for Community Empowerment: Cross-Pollinating Innovative Models

# PARALLEL SESSIONS PAPER PRESENTATIONS PROGRAM

Day 1: 25 November 2020			
	Room B	Room C	Room D
	B1-1	C1-1	D1-1
	Paper No: 12	Paper No: 37	
<b>.•</b> .	TITLE: A SUSTAINABILITY SPECIFICATION	TITLE: THE DEVELOPMENT OF A DESKTOP	
sion.	FOR EMERGENCY HOUSING	ROTATIONAL CASTING MACHINE FOR	
, sess 1311		INCREASING SMALL-SCALE MANUFACTURING	
25t 5e55i0n:		CAPABILITIES	
<b>, ,</b>	Authors: Jeremy Gibberd	Authors: Martin Bolton	
	Paper No: 13	Paper No: 119	
	TITLE: SYNERGISTIC INTERVENTIONS FOR	TITLE: IMPLEMENTATION OF INNOVATIVE	
	SUSTAINABILITY IMPROVEMENT	BUILDING TECHNOLOGIES IN SOUTH AFRICA - A	
		REVIEW OF PRODUCTS	
	Authors: Jeremy Gibberd	Authors: Jeffrey Mahachi	
	Paper No: 16	Paper No: 127	
	TITLE: IMPROVED GREY MODELS IN	TITLE: ADVANCEMENT OF POLYMERIC	
	VEHICULAR CO2 EMISSION MODELLING	MATERIALS AS HIGH THERMAL CONDUCTIVITY	
	AND FORECASTING TO DECARBONIZE	AND ENERGY STORAGE DIELECTRIC MATERIALS	
	URBAN AREAS – SUSTAINABLE	USING GRAPHENE NANOSHEETS: A REVIEW	
	ENVIRONMENT		
	AUTHORS: VINCENT B. GETANDA, PETER K.	AUTHORS: UWA ORJI UYOR, PATRICIA	
an:	KIHATO, PETERSON K. HINGA AND	ABIMBOLA POPOOLA, OLAWALE POPOOLA AND	
cossid 3h	HIDETOSHI OYA	VICTOR SUNDAY AIGBODION	
15t 11h 13h	Paper No: 18	Paper No: 108	
· <b>^</b>	TITLE: ANALYTICAL REVIEW OF	TITLE: THE USE OF TECHNOLOGY AND ITS	
	TECHNOLOGY TRANSFER IN	INFLUENCE ON THE OBESITY EPIDEMIC IN	
	Authors: Akram Elkhalifa	Authors: Hema Kesa	

ľ		Paper No: 44	Paper No: 135	
			TITLE: PUBLIC HEALTH SERVICES DELIVERED THROUGH THE MOBILE PHONE IN THE GREATER ACCRA REGION OF GHANA- A QUALITATIVE STUDY	
	<b>:</b> .	Authors: Wihan Hendrikz	Authors: Alex Hammond and Patience Abor	
	cession.	Paper No: 84	Paper No: 136	
	15t Jun 13h		TITLE: PROMOTION OF INDIGENOUS FOODS CONSUMPTION FOR NON-COMMUNICABLE DISEASES MANAGEMENT: A CHALLENGE FOR SOUTH AFRICA IN THE 4TH INDUSTRIAL REVOLUTION CONTEXT	
		Authors: Ilesanmi Daniyan, Vincent Balogun, Adefemi Adeodu, Edidiong Etudor and Khumbulani Mpofu	Authors: Alex Dimitri Tchuenchieu Kamgain and Hema Kesa	
I		B1-2	C1-2	D1-2
		Paper No: 17	Paper No: 112	Paper No: 50
	<b>.</b>	AGRICULTURE APPROACH TO DEAL WITH THE SPATIAL IMPLICATIONS OF POLITICAL ECONOMIC TRANSITION ON THE AGRICULTURAL LAND: A CASE STUDY OF AL-KALAKLA AL-QUBBA - KHARTOUM,	TITLE: FOOD WASTE MANAGEMENT IN HOSPITALS	TITLE: PRODUCT INNOVATION AS A CATALYST FOR JOB CREATION – CASE OF BOTSWANA MANUFACTURING SMALL, MICRO AND MEDIUM ENTERPRISES
		Authors: Malaz Ahmed	Authors: Micaela Myburgh and Hema Kesa	Authors: Polokano Sekonopo, Ritchie Moalosi, Bethuel Molwane and Herbert Mapfaira

	Paper No: 24	Paper No: 128	Paper No: 113
<u>ن</u>	TITLE: INFUSING CIRCULAR ECONOMY IN	TITLE: THE ADVENT OF CROSS-LAMINATED	TITLE: COMMUNITY
2nd 3an 16h	AFRICAN SMART CITIES	TIMBER CONSTRUCTION IN SOUTH AFRICA	ENGAGEMENT, KNOWLEDGE
15e5 161.			AND TECHNOLOGY EXCHANGE:
2nd ah			ACADEMIC REFLECTIONS ON A
<b>Y</b>			PROJECT AT BERTRAMS,
	Authors: John Trimble and Humbulani	Authors: Brendan Murphy and John Smallwood	Authors: Laetitia Lamprecht
	Phuluwa		and Amira Osman
	Paper No: 39	Paper No: 132	Paper No: 118
	TITLE: SANITATION DEMAND, CONDITION	TITLE: INSIZA DISTRICT BIOGAS BASELINE	TITLE: PROSPECTS OF 3D
	AND COVERAGE IN ZITHOBENI EXTENSION	SURVEY	PRINTING OF HOUSES IN
	8 INFORMAL SETTLEMENT, CITY OF		SOUTH AFRICA
	TSHWANE.		
	Authors: Renay Van Wyk, Crescentia	Authors: Garikai Kajau and Daniel M Madyira	Authors: Jeffrey Mahachi
	Netshieneulu and Tobias Barnard		
	Paper No: 40	Paper No: 133	Paper No: 111
	TITLE: THE USE OF OPEN SOURCE	TITLE: MANICALAND AND MASHONALAND	TITLE: LEARNING FROM THE
	PLATFORMS IN THE DEVELOPMENT OF AN	BIOGAS BASELINE SURVEY	GROUND UP: THE COMMUNITY-
	APPROPRIATE IRRIGATION SYSTEM FOR		DRIVEN RENOVATION OF AN
	SMALL-SCALE FARMERS IN		OCCUPIED BUILDING IN
	JOHANNESBURG		JOHANNESBURG, SOUTH
			AFRICA
	Authors: Oratile Rose Mokgatla and	Authors: Garikai Kajau and Daniel M Madyira	Authors: Suzette van der Walt,
	Martin Bolton		Amira Osman and Afua Wilcox
2nd session:	Paper No: 60	Paper No: 154	Paper No: 14
cessi on	TITLE: THE DEVELOPMENT OF	TITLE: KNOWLEDGE LITERACY ON FOURTH	TITLE: EVALUATION OF
1927. J.	HOMEFARM, A HYDROPONIC	INDUSTRIAL REVOLUTION: A SCIENTOMETRIC	COUNTER-HEGEMONIC
2. 7di.	CULTIVATION SYSTEM SUITED TO LOCAL	ANALYSIS OF RESEARCH OUTPUTS FROM THE	TECHNOLOGIES IN SELF-
	MANUFACTURE.	ECOWAS REGION IN AFRICA	MANAGEMENT HOUSING
			PRODUCTION
	Authors: Martin Bolton and Michael Currin	Authors: Oluseye O. Jegede and Olufikayo O.	Authors: Giselle Mascarenhas
		Abodunde	and Roberto dos Santos

	B1-3	C1-3	D1-3
	Paper No: 59		Paper No: 68
3rd 5e55i0n:	TITLE: EVALUATION OF INDIGENOUS		TITLE: TECHNOLOGY TRANSFER,
cessia 8th	TECHNOLOGY FOR CAST ALUMINIUM		HUMAN CAPITAL
319 31	COOKWARE PRODUCTION IN NIGERIA: A		DEVELOPMENT AND CAPACITY
2 %	CASE STUDY OF USER HEALTH RISKS FROM		BUILDING: THE SONGHAI
	COOKWARE MADE IN SAKI		LEADERSHIP ACADEMY MODEL
	Authors: Oluwafemi Adelabu and Angus Donald Campbell		Authors: John Tharakan
	Paper No: 4	Paper No: 53	Paper No: 140
	TITLE: IN THE BEEGINING: THE	TITLE: WATER SUPPLY SYSTEMS ASSESSMENT	TITEL: A NOVEL METHOD OF
		AND WASH PROFILE OF PRIMARY HEALTHCARE	SILOXANE REMOVAL FROM
	Authors: Ivan Leroy Brown and Angus  Donald Campbell	Authors: Enovwo Odjegba, Barakat Layi-Adigun and Victoria Dada	Author: Victor Mhlanga, Amos Adeniyi, Lerato Tshabalala and
	Donaid Campbell	and victoria Dada	Richard Mbaya
	Paper No: 165	Paper No: 75	Paper No: 43
	Title: COMPARATIVE THERMAL	TITLE: A-FRAME MODEL FOR GROUNDWATER	TITLE: DEVELOPMENT OF AN
	PERFORMANCES OF DIFFERENT ENVELOPE	QUALITY MONITORING BASED ON A	AUTOMATED COCONUT
	WALL DESIGNS FOR SUSTAINABLE SOLAR COOLING	PARTICIPATORY APPROACH, IN SUDAN	SCRAPING MACHINE
	Authors: Osamuyi Obadolagbonyi, Ben Oni	Authors: Sahl Yasin and Awad Ahmed	Authors: Braulio
	and Mandoye Ndoye		Mendes, Kgaugelo
ion.			Dikgale, Lagouge Kwanda
3rd session:	Paper No: 106	Paper No: 77	Paper No: 116
310 611	TITLE: EFFECT OF INJECTION PARAMETERS		TITLE: WHIVE IO: BLOCKCHAIN
7,0	ON CAVITY PRESSURE, TENSILE AND	SLUMS, IDPS AND REFUGEES CAMPS: CASE	PROTOCOL INCENTIVIZING
	MICROSTRUCTURAL PROPERTIES OF PLASTIC REINFORCED COMPOSITES	STUDY OF KASS SOUTH DARFUR, SUDAN	SUSTAINABLE ENERGY ADOPTION
	FLASTIC KLIIVI OKCLD COIVIFOSITES		ADOFTION

	Authors: Adefemi Adeodu, Grace	Authors: Wini Mudawi Ibrahim Adam, Elfadil	Authors: Todd Shurn and John	
	Mukondelei Kanakana, Rendani Maladzhi	Azrag, Mariska Ronteltap and Dennis Wolter	Wainaina Karanja	
ori.	and Ilesanmi Daniyan			
3rd Session:	Paper No: 122	Paper No: 166	Paper No: 126	
	TITLE: Constructing a Hadoop Cluster using	TITLE: TOWARD AN ENERGY THRESHOLD	TITLE: AN OVERVIEW OF A	
	Raspberry Pi's	HYPOTHESIS MODEL FOR SOCIAL BENEFIT AND	SUSTAINABLE ADOPTION	
		HOUSEHOLD ENERGY USAGE	SUPPORT FRAMEWORK (ASF)	
	· · · · · · · · · · · · · · · · · · ·	Authors: Samira Ortiz, Mandoye Ndoye and	Authors: Enitan Oloto and	
	Bemley	Marcel Castro	Kayode Adebayo	
	Day 2: 26 November 2020			
	Room B	Room C	Room D	
	B2-1	C2-1	D2-1	
1st Session.	Paper No: 79	Paper No: 22		
, sess 13h	TITLE: APPROPRIATE RENEWABLE ENERGY	TITLE: A REVIEW OF COOKING SYSTEMS AND		
151 1h		ENERGY EFFICIENCIES		
<b>y</b>	RURAL SOUTH AFRICA. THE COFIMVABA			
	SCIENCE CENTRE MODEL			
	Authors: Jako Nice	Authors: Hesborn Ayub, Willis		
:on:		Ambusso, Franklin Manene and Daudi Nyaanga		
cessio 3h	Paper No: 160	Paper No: 33		
1st session:	TITLE: INTEGRATED RODENT CONTROL	TITLE: INTEGRATION OF TECHNOLOGY IN		
77.		COMMUNITIES TO ENHANCE CIRCULAR		
		ECONOMY IDEOLOGIES: A PEETS APPROACH		
	SUSTAINABLE URBAN DEVELOPMENT			

Authors Kass	atsa Labala and Kaarsatsa	Authors Frakial Nyani Camson Masshir	
9	notso Lebelo and Kgomotso	Authors: Ezekiel Nyoni, Samson Masebinu,	
Lebelo		Zenzile Rasmeni and Daniel Madyira	
•••			
Session: Paper No: 162 TITLE: ENVIRO ASSESSMENT I		_	
Paper No: 162		Paper No: 35	
TITLE: ENVIRO		TITLE: INVESTIGATING THE EFFECT OF YEAST ON	
	N THE MANGAUNG	THE ANAEROBIC DIGESTION OF COW DUNG	
	N MUNICIPALITY: RODENT		
CONTROL AT J	OE SLOVO SQUARE		
Authors: Kgom	otso Lebelo, Lebohang	Authors: Zenzile Rasmeni, Daniel Madyira,	
Letsitsa, Irene	Mokgadi, Ntsokolo Moabi,	Bongeka Magwaza and Anthony Matheri	
Rethabile Tsui	nyana, Letshego Sebego,		
Bongani Gqwe	tha, Tshitso Mohatlane,		
Ntombizanele	Jafta, Tlholohelo Tsolo,		
Thapelo Makh	ele, Gontse Mosola and		
Nikiwe Lerotho	odi		
Paper No: 9		Paper No: 15	
TITLE: THE SIG	NIFICANCE OF MATURITY	TITLE: SYMBA: AN EXPLORATION OF	
MODELS APPL	ICATION IN	APPROPRIATE MEDICAL DEVICE DESIGN FOR	
MANUFACTUR	RING TOWARDS THE	THE SOUTH AFRICAN CONTEXT	
ADAPTATION (	OF INDUSTRY 4.0: A REVIEW		
Authors: Moch	ack Mazibuko, Lagouge	Authors: Ashton Margarete Moseley and Angus	
	Mashamba and Robert	Donald Campbell	
Mutyavavire	אומאוומוווטמ מווע ולטטכונ		
Paper No: 48		Paper No: 30	
TITLE: RADICA	I INNOVATION AND TAROO.	TITLE: QUALITATIVE VERSUS QUANTITATIVE FIT-	
HOW TO FNC		TESTING OF TWO COMMONLY USED	
> 'V'.	NSTRUAL PRODUCT IN	RESPIRATORS IN RESOURCE-LIMITED	
	A THROUGH BEHAVIOURAL	HEALTHCARE FACILITIES	
DESIGN.			

1st session: 1st 11h - 13h	Authors: Pia Findlay and Angus Donald Campbell  Paper No: 62 TITLE: DEVELOPMENT OF A MODULAR PICK AND PLACE ROBOT/AUTOMATED GUIDED VEHICLE (AGV) Authors: Modestus Okwu, Oluwayomi J. Oyejide, Lagouge Tartibu and Mosa Machesa	Authors: Katekani Ngobeni, Martha Chadyiwa, Nontembeko Dudeni-Tlhone and Renay Van Wyk  Paper No: 31  TITLE: TRIP DISTRIBUTION ANALYSIS UNDER DEMAND UNCERTAINTY IN FREIGHT RAIL OPERATIONS Authors: Robert Mutyavavire, Meshack Mazibuko and Lagouge Tartibu	
	Paper No: 129 TITLE: THE POTENTIAL CONTRIBUTION OF INDUSTRY 4.0 TO THE CONSTRUCTION INDUSTRY Authors: John Shaidi and John Smallwood	C2-2 Paper No: 141 TITLE: TITLE: AFRICANA PHILOSOPHY: A KEY TO ETHICAL APPROPRIATE TECHNOLOGY Authors: Charles Verharen, Flordeliz Bugarin, John Tharakan, Bekele Gutema, Enrico Wensing, Joseph Fortunak and George Middendorf	D2-2
2nd Session:	Paper No: 150 TITLE: DATA ANALYTICS FOR IMPROVED INDOOR AIR QUALITY Authors: Ashvin Manga and Chris Allen	Paper No: 36 TITLE: INVESTIGATION OF WATER RECYCLING IN AN ANAEROBIC DIGESTER Authors: Zenzile Rasmeni, Daniel Madyira, Veli Nkutha and Anthony Matheri	

	la es ese	l
	Paper No: 151	Paper No: 65
	TITLE: THE INTEGRATION OF INTERACTIVE	TITLE: RE-ILLUSTRATING OLD BOOKS FOR
	ELEMENTS WITH PRE-SCHOOL	MODERN DAY READERS: "THE DRUMMER BOY"
	TECHNOLOGIES FOR ENHANCING	AS A CASE STUDY
	WISDOM TRANSFERENCE IN SUSTAINABLE	
	EDUCATION.	
	Authors: Katlego Tshimologo Lebethe	Authors: Emmanuel Etsename and Abayomi
.on:		Ilesanmi
2nd Session:	Paper No: 169	Paper No: 117
20921 Jr	TITLE: A REVIEW OF CRITICAL PROJECT	TITLE: THE INFLUENCE OF LASER PROCESS
J. Jak.	MANAGEMENT TOOLS FOR IMPROVING	PARAMETERS ON THE CLAD GEOMETRY OF A
	CONSTRUCTION SMES PROJECT	HIGH ENTROPY ALLOY USING RESPONSE
	PERFORMANCE	SURFACE METHODOLOGY
	Authors: Chijioke Emere, Innocent	Authors: Modupeola Dada, Patricia Popoola,
	Musonda and Chioma Okoro	Ntombizodwa Mathe, Sisa Pityana, Samson
		Adeosun and Olufemi Aramide
	Paper No: 19	Paper No: 64
	TITLE: A NARRATIVE REVIEW ON LEAD	TITLE: APPLICATION OF ARTIFICIAL BEE COLONY
	POISONING AND ANTI-SOCIAL BEHAVIOUR	(ABC) ALGORITHM IN A BIG-BOX STORE OR
	IN SUB-SAHARAN COUNTRIES	RETAIL FACILITY
~o;	Authors: Thokozani P Mbonane	Authors: Modestus Okwu, Lagouge Tartibu and
assiO.		Ifeyinwa J. Orji
1956, 7p.	Paper No: 38	Paper No: 105
2nd Session:	TITLE: NOT THE "REGULAR" FIT: A SOCIO-	TITLE: INTERNET OF POSTAL THINGS (IOPT)
•	TECHNICAL SYSTEMS APPROACH TO	UNLOCKING POTENTIAL IN THE POSTAL VALUE
	DESIGNING EYEWEAR IN SOUTH AFRICA	CHAIN FOR COMMUNITY DEVELOPMENT: AN
		APPROPRIATE TECHNOLOGY PERSPECTIVE
	Authors: Marcha Naudé and Angus Donald	Authors: Kgabo Mokgohloa, Kemlall Ramdass,
	Campbell	John Alfred Trimble and Sbusiso Xaba

Day 3: 27 November 2020				
	Room B	Room C	Room D	
25t 5ession.	Paper No: 42 TITLE: THE INCIDENCE OF BRUCELLOSIS IN LIVESTOCK: THE CASE OF SOUTH AFRICA BETWEEN 2010-2019 Authors: Mpinane Senekane, Shalin Bidassey-Manilal and Thokozani Mbonane	Paper No: 137 TITLE: SYNTHESIS OF A NOVEL HETEROGENEOUS BASIC CATALYST FOR PRODUCTION OF BIODIESEL FROM WASTE OIL Authors: Leshoboro Molapo, Amos Adeniyi,	D3-1	
1st 5ession: 1st 11h 12h	Paper No: 85 TITLE: 'LOW-TECH' AS A METHOD OF FORGING NEW GENDER ARCHETYPES IN THE DESIGN OF A MALE CHILDREN'S VILLAGE IN MARABASTAD Authors: Lourina Grobler Paper No: 41 TITLE: DEVELOPMENT OF SOLAR POWERED WATER PURIFICATION SYSTEMS Authors: Kgaugelo Dikgale, Braulio Mendes, Lagouge Kwanda Tartibu, Justin Thokozani Kunene, Emmanuel Bakaya- Kyahurwa and Delani Favours Ntobela	Paper No: 167 TITLE: SIMULATING THE PASSIVE INDOOR ENVIRONMENTAL IMPACT OF THREE ROOF INSULATION TYPES ON URBAN RESIDENCES IN LAGOS, NIGERIA Authors: Henry Igugu and Jacques Laubscher Paper No: 163 TITLE: ADAPTATION TO THE IMPACT OF DROUGHT ON WATER AVAILABILITY IN COMMUNITIES: A REVIEW Authors: Irene Majang, Leana Esterhuizen and Kgomotso Lebelo		

	Paper No: 158	Paper No: 157	
	TITLE: THE RETROFITTED GARI ROASTING	TITLE: SUSTAINABILITY OF AFRICAN COUNTRIES'	
ori.	STOVE: Concept, Design and Analysis	COMPETITIVE INDUSTRIAL PERFORMANCES	
esti an		THROUGH THE OPEN QUINTUPLE HELIX MODEL:	
1st 5ession:		ANALYSIS USING INNOVATION SYNERGY INDEX	
7. 771			
	Authors: Donald Amrago, Alex Donyinah	Authors: Bernadin Geraud Comlan Ahodode and	
	and Emmanuel Appiah	Henri Ngoa Tabi	
	Paper No: 134	Paper No: 159	
	TITLE: SIMULATION STUDY FOR	TITLE: ACCESSIBLE RAIL STATION PLATFORM	
	POTENTIAL USE OF EUTECTIC PLATES IN	INDEPENDENT GAP FILLER FOR OF PERSONS	
	SOUTH AFRICAN MEDIUM REFRIGERATED	WITH REDUCED MOBILITY	
	TRANSPORT VEHICLE		
	Authors: Thandiwe Radebe, Zhongjie Huan	Authors: Emmanuel Matsika and Lingong Li	
	and Jeffrey Baloyi		
_•	Paper No: 145	Paper No: 156	
sion.	TITLE: DESIGN AND IMPLEMENTATION OF	TITLE: A COMMUNITY-INFORMED CONCEPT OF	
15t 5855i0n. 15t 11h 13h	A TORQUE AUGMENTED MOBILITY AID	A RAINWATER HARVESTING DESIGN WITH	
15t 11/		POTENTIAL TO REDUCE WATER SCARCITY IN	
<b>'</b>		RURAL SOUTH AFRICA	
	Authors: Sinetemba Hlungulu	Authors: Pertina Nyamukondiwa, Prof. Joseph	
		Francis, Dr. Marizvikuru Manjoro and Patrick	
		Kapila	

#### LINKS TO DIFFERENT ROOMS OF THE CONFERENCE

Main Room (A): <a href="https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e0bd2b218073a47831fdd0a47740683a4">https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e0bd2b218073a47831fdd0a47740683a4</a>

Room B: https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e1cdea3a62e2a9a883b58ce2985ce4fba

Room C: https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e9f27ca5b57a8572eb26da09f49249fa3

Room D: <a href="https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e9106c115c3bd79d054746119e82584ae">https://cirpdesign2020.webex.com/cirpdesign2020/onstage/g.php?MTID=e9106c115c3bd79d054746119e82584ae</a>

#### Please note:

- 1. All the keynote addresses will be on the main room (room A)
- 2. For all the parallel sessions, please check the session in which your paper is scheduled, and make sure your to join that room during the specific time.
- 3. All presenters will have 12 minutes to present, which will be followed by a 5 minutes of Q&A

#### **Instructions of the use of Cisco Webex platform:**

- 1. Click on the room link to join the webinar. It is advised to use google chrome browser for a better experience.
- 2. Kindly Add the Webex extension on your browser when requested. If possible, install the Cisco Webex meetings desktop app for quick access to the meeting rooms.
- 3. Register for the meeting with your names and email and then click Join Now
- 4. When you join the meeting room, you will join as an attendee, the host or the session chair will then give you the panellist / presenter role when it's your time to present; you will then be able to share your screen and present your paper.

## 9TH INTERNATIONAL CONFERENCE ON APPROPRIATE TECHNOLOGY

NOVEMBER 23 - 27, 2020