



**INAT.**

INTERNATIONAL NETWORK ON  
APPROPRIATE TECHNOLOGY.



**Tshwane University  
of Technology**  
*We empower people*

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

<p><b>1st Session: 11h - 13h</b></p>	<p><b>Paper No: 44</b></p> <p>TITLE: TRANSLATING AUTHORSHIP IN ARCHITECTURE</p> <p>Authors: Wihan Hendrikz</p> <p><b>Paper No: 84</b></p> <p>TITLE: DEVELOPMENT OF A FIRE DETECTION AND EXTINGUISHING ROBOT</p> <p>Authors: Ilesanmi Daniyan, Vincent Balogun, Adefemi Adeodu, Edidiong Etudor and Khumbulani Mpofu</p>	<p><b>Paper No: 135</b></p> <p>TITLE: PUBLIC HEALTH SERVICES DELIVERED THROUGH THE MOBILE PHONE IN THE GREATER ACCRA REGION OF GHANA- A QUALITATIVE STUDY</p> <p>Authors: Alex Hammond and Patience Abor</p> <p><b>Paper No: 136</b></p> <p>TITLE: PROMOTION OF INDIGENOUS FOODS CONSUMPTION FOR NON-COMMUNICABLE DISEASES MANAGEMENT: A CHALLENGE FOR SOUTH AFRICA IN THE 4TH INDUSTRIAL REVOLUTION CONTEXT</p> <p>Authors: Alex Dimitri Tchuenchieu Kamgain and Hema Kesa</p>	
<p><b>2nd Session: 14h - 16h</b></p>	<p>B1-2</p> <p><b>Paper No: 17</b></p> <p>TITLE: INSIGHTS ON FLOATING 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,</p> <p>Authors: Malaz Ahmed</p>	<p>C1-2</p> <p><b>Paper No: 112</b></p> <p>TITLE: FOOD WASTE MANAGEMENT IN HOSPITALS</p> <p>Authors: Micaela Myburgh and Hema Kesa</p>	<p>D1-2</p> <p><b>Paper No: 50</b></p> <p>TITLE: PRODUCT INNOVATION AS A CATALYST FOR JOB CREATION – CASE OF BOTSWANA MANUFACTURING SMALL, MICRO AND MEDIUM ENTERPRISES</p> <p>Authors: Polokano Sekonopo, Ritchie Moalosi, Bethuel Molwane and Herbert Mapfaira</p>

2nd Session:  
14h - 16h

**Paper No: 24**

TITLE: INFUSING CIRCULAR ECONOMY IN AFRICAN SMART CITIES

Authors: John Trimble and Humbulani Phuluwa

**Paper No: 39**

TITLE: SANITATION DEMAND, CONDITION AND COVERAGE IN ZITHOBENI EXTENSION 8 INFORMAL SETTLEMENT, CITY OF TSHWANE.

Authors: Renay Van Wyk, Crescentia Netshieneulu and Tobias Barnard

**Paper No: 40**

TITLE: THE USE OF OPEN SOURCE PLATFORMS IN THE DEVELOPMENT OF AN APPROPRIATE IRRIGATION SYSTEM FOR SMALL-SCALE FARMERS IN JOHANNESBURG

Authors: Oratile Rose Mokgatla and Martin Bolton

**Paper No: 60**

TITLE: THE DEVELOPMENT OF HOMEFARM, A HYDROPONIC CULTIVATION SYSTEM SUITED TO LOCAL MANUFACTURE.

Authors: Martin Bolton and Michael Currin

**Paper No: 128**

TITLE: THE ADVENT OF CROSS-LAMINATED TIMBER CONSTRUCTION IN SOUTH AFRICA

Authors: Brendan Murphy and John Smallwood

**Paper No: 132**

TITLE: INSIZA DISTRICT BIOGAS BASELINE SURVEY

Authors: Garikai Kajau and Daniel M Madyira

**Paper No: 133**

TITLE: MANICALAND AND MASHONALAND BIOGAS BASELINE SURVEY

Authors: Garikai Kajau and Daniel M Madyira

**Paper No: 154**

TITLE: KNOWLEDGE LITERACY ON FOURTH INDUSTRIAL REVOLUTION: A SCIENTOMETRIC ANALYSIS OF RESEARCH OUTPUTS FROM THE ECOWAS REGION IN AFRICA

Authors: Oluseye O. Jegede and Olufikayo O. Abodunde

**Paper No: 113**

TITLE: COMMUNITY ENGAGEMENT, KNOWLEDGE AND TECHNOLOGY EXCHANGE: ACADEMIC REFLECTIONS ON A PROJECT AT BERTRAMS,

Authors: Laetitia Lamprecht and Amira Osman

**Paper No: 118**

TITLE: PROSPECTS OF 3D PRINTING OF HOUSES IN SOUTH AFRICA

Authors: Jeffrey Mahachi

**Paper No: 111**

TITLE: LEARNING FROM THE GROUND UP: THE COMMUNITY-DRIVEN RENOVATION OF AN OCCUPIED BUILDING IN JOHANNESBURG, SOUTH

Authors: Suzette van der Walt, Amira Osman and Afua Wilcox

**Paper No: 14**

TITLE: EVALUATION OF COUNTER-HEGEMONIC TECHNOLOGIES IN SELF-MANAGEMENT HOUSING

Authors: Giselle Mascarenhas and Roberto dos Santos

2nd Session:  
14h - 16h

<p>3rd Session: 16h - 18H</p>	B1-3	C1-3	D1-3
	<p><b>Paper No: 59</b> TITLE: EVALUATION OF INDIGENOUS TECHNOLOGY FOR CAST ALUMINIUM COOKWARE PRODUCTION IN NIGERIA: A CASE STUDY OF USER HEALTH RISKS FROM COOKWARE MADE IN SAKI  Authors: Oluwafemi Adelabu and Angus Donald Campbell</p> <p><b>Paper No: 4</b> TITLE: IN THE BEEGINING: THE IMPLEMENTATION OF AN APPROPRIATE Authors: Ivan Leroy Brown and Angus Donald Campbell</p> <p><b>Paper No: 165</b> Title: COMPARATIVE THERMAL PERFORMANCES OF DIFFERENT ENVELOPE WALL DESIGNS FOR SUSTAINABLE SOLAR COOLING Authors: Osamuyi Obadolagbonyi, Ben Oni and Mandoye Ndoye</p> <p><b>Paper No: 106</b> TITLE: EFFECT OF INJECTION PARAMETERS ON CAVITY PRESSURE, TENSILE AND MICROSTRUCTURAL PROPERTIES OF PLASTIC REINFORCED COMPOSITES</p>	<p><b>Paper No: 141</b> 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</p> <p><b>Paper No: 53</b> TITLE: WATER SUPPLY SYSTEMS ASSESSMENT AND WASH PROFILE OF PRIMARY HEALTHCARE Authors: Enovwo Odjegba, Barakat Layi-Adigun and Victoria Dada</p> <p><b>Paper No: 75</b> TITLE: A-FRAME MODEL FOR GROUNDWATER QUALITY MONITORING BASED ON A PARTICIPATORY APPROACH, IN SUDAN  Authors: Sahl Yasin and Awad Ahmed</p> <p><b>Paper No: 77</b> TITLE: HOUSEHOLD BIOGAS DIGESTER FOR SLUMS, IDPS AND REFUGEES CAMPS: CASE STUDY OF KASS SOUTH DARFUR, SUDAN</p>	<p><b>Paper No: 68</b> TITLE: TECHNOLOGY TRANSFER, HUMAN CAPITAL DEVELOPMENT AND CAPACITY BUILDING: THE SONGHAI LEADERSHIP ACADEMY MODEL  Authors: John Tharakan</p> <p><b>Paper No: 140</b> TITEL: A NOVEL METHOD OF SILOXANE REMOVAL FROM Author: Victor Mhlanga, Amos Adeniyi, Lerato Tshabalala and Richard Mbaya</p> <p><b>Paper No: 43</b> TITLE: DEVELOPMENT OF AN AUTOMATED COCONUT SCRAPING MACHINE  Authors: Braulio Mendes, Kgaugelo Dikgale, Lagouge Kwanda</p> <p><b>Paper No: 116</b> TITLE: WHIVE IO: BLOCKCHAIN PROTOCOL INCENTIVIZING SUSTAINABLE ENERGY ADOPTION</p>

3rd Session:  
16h - 18H

3rd Session: 16h - 18H	Authors: Adefemi Adeodu, Grace Mukondelei Kanakana, Rendani Maladzhi and Ilesanmi Daniyan	Authors: Wini Mudawi Ibrahim Adam, Elfadil Azrag, Mariska Ronteltap and Dennis Wolter	Authors: Todd Shurn and John Wainaina Karanja
	<b>Paper No: 122</b>	<b>Paper No: 166</b>	<b>Paper No: 126</b>
	TITLE: Constructing a Hadoop Cluster using Raspberry Pi's	TITLE: TOWARD AN ENERGY THRESHOLD HYPOTHESIS MODEL FOR SOCIAL BENEFIT AND HOUSEHOLD ENERGY USAGE	TITLE: AN OVERVIEW OF A SUSTAINABLE ADOPTION SUPPORT FRAMEWORK (ASF)
	Authors: Anthony Adedoyin and Jesse Bemley	Authors: Samira Ortiz, Mandoye Ndoye and Marcel Castro	Authors: Enitan Oloto and Kayode Adebayo
<b>Day 2: 26 November 2020</b>			
	<b>Room B</b>	<b>Room C</b>	<b>Room D</b>
1st Session: 11h - 13h	B2-1	C2-1	D2-1
	<b>Paper No: 79</b>	<b>Paper No: 22</b>	
	TITLE: APPROPRIATE RENEWABLE ENERGY FOR EDUCATION INFRASTRUCTURE IN RURAL SOUTH AFRICA. THE COFIMVABA SCIENCE CENTRE MODEL	TITLE: A REVIEW OF COOKING SYSTEMS AND ENERGY EFFICIENCIES	
	Authors: Jako Nice	Authors: Hesborn Ayub, Willis Ambusso, Franklin Manene and Daudi Nyaanga	
1st Session: 11h - 13h	<b>Paper No: 160</b>	<b>Paper No: 33</b>	
	TITLE: INTEGRATED RODENT CONTROL STRATEGY FOR SOUTH AFRICAN TOWNSHIPS: A SYSTEMS AND SUSTAINABLE URBAN DEVELOPMENT	TITLE: INTEGRATION OF TECHNOLOGY IN COMMUNITIES TO ENHANCE CIRCULAR ECONOMY IDEOLOGIES: A PEETS APPROACH	

<p><b>1st Session: 11h - 13h</b></p>	<p>Authors: Kgomotso Lebelo and Kgomotso Lebelo</p> <p><b>Paper No: 162</b></p> <p>TITLE: ENVIRONMENTAL HEALTH BASELINE ASSESSMENT IN THE MANGAUNG METROPOLITAN MUNICIPALITY: RODENT CONTROL AT JOE SLOVO SQUARE</p> <p>Authors: Kgomotso Lebelo, Lebohlang Letsitsa, Irene Mokgadi, Ntsokolo Moabi, Rethabile Tsuinyana, Letshego Sebege, Bongani Gqwetha, Tshitso Mohatlane, Ntombizanele Jafta, Tlholohelo Tsolo, Thapelo Makhele, Gontse Mosola and Nikiwe Lerothodi</p> <p><b>Paper No: 9</b></p> <p>TITLE: THE SIGNIFICANCE OF MATURITY MODELS APPLICATION IN MANUFACTURING TOWARDS THE ADAPTATION OF INDUSTRY 4.0: A REVIEW</p> <p>Authors: Meshack Mazibuko, Lagouge Tartibu, Able Mashamba and Robert Mutyavavire</p> <p><b>Paper No: 48</b></p> <p>TITLE: RADICAL INNOVATION AND TABOO: HOW TO ENCOURAGE THE ACCEPTANCE OF A NEW MENSTRUAL PRODUCT IN SOUTH AFRICA THROUGH BEHAVIOURAL DESIGN.</p>	<p>Authors: Ezekiel Nyoni, Samson Masebinu, Zenzile Rasmeni and Daniel Madyira</p> <p><b>Paper No: 35</b></p> <p>TITLE: INVESTIGATING THE EFFECT OF YEAST ON THE ANAEROBIC DIGESTION OF COW DUNG</p> <p>Authors: Zenzile Rasmeni, Daniel Madyira, Bongeka Magwaza and Anthony Matheri</p> <p><b>Paper No: 15</b></p> <p>TITLE: SYMBA: AN EXPLORATION OF APPROPRIATE MEDICAL DEVICE DESIGN FOR THE SOUTH AFRICAN CONTEXT</p> <p>Authors: Ashton Margarete Moseley and Angus Donald Campbell</p> <p><b>Paper No: 30</b></p> <p>TITLE: QUALITATIVE VERSUS QUANTITATIVE FIT-TESTING OF TWO COMMONLY USED RESPIRATORS IN RESOURCE-LIMITED HEALTHCARE FACILITIES</p>	
<p><b>1st Session: 11h - 13h</b></p>			

<p><b>1st Session: 11h - 13h</b></p>	<p>Authors: Pia Findlay and Angus Donald Campbell</p> <p><b>Paper No: 62</b></p> <p>TITLE: DEVELOPMENT OF A MODULAR PICK AND PLACE ROBOT/AUTOMATED GUIDED VEHICLE (AGV)</p> <p>Authors: Modestus Okwu, Oluwayomi J. Oyejide, Lagouge Tartibu and Mosa Machesa</p>	<p>Authors: Katekani Ngobeni, Martha Chadyiwa, Nontembeko Dudeni-Tlhone and Renay Van Wyk</p> <p><b>Paper No: 31</b></p> <p>TITLE: TRIP DISTRIBUTION ANALYSIS UNDER DEMAND UNCERTAINTY IN FREIGHT RAIL OPERATIONS</p> <p>Authors: Robert Mutyavavire, Meshack Mazibuko and Lagouge Tartibu</p>	
<p><b>2nd Session: 14H - 16H</b></p>	<p>B2-2</p> <p><b>Paper No: 129</b></p> <p>TITLE: THE POTENTIAL CONTRIBUTION OF INDUSTRY 4.0 TO THE CONSTRUCTION INDUSTRY</p> <p>Authors: John Shaidi and John Smallwood</p> <p><b>Paper No: 150</b></p> <p>TITLE: DATA ANALYTICS FOR IMPROVED INDOOR AIR QUALITY</p> <p>Authors: Ashvin Manga and Chris Allen</p> <p><b>Paper No: 151</b></p> <p>TITLE: THE INTEGRATION OF INTERACTIVE ELEMENTS WITH PRE-SCHOOL TECHNOLOGIES FOR ENHANCING WISDOM TRANSFERENCE IN SUSTAINABLE EDUCATION.</p>	<p>C2-2</p> <p><b>Paper No:</b></p> <p>TITLE:</p> <p>Authors:</p> <p><b>Paper No: 36</b></p> <p>TITLE: INVESTIGATION OF WATER RECYCLING IN AN ANAEROBIC DIGESTER</p> <p>Authors: Zenzile Rasmeni, Daniel Madyira, Veli Nkutha and Anthony Matheri</p> <p><b>Paper No: 65</b></p> <p>TITLE: RE-ILLUSTRATING OLD BOOKS FOR MODERN DAY READERS: "THE DRUMMER BOY" AS A CASE STUDY</p>	<p>D2-2</p>



<p><b>2nd Session: 14H - 16H</b></p>	<p>Authors: Katlego Tshimologo Lebetho</p> <p><b>Paper No: 169</b></p> <p>TITLE: A REVIEW OF CRITICAL PROJECT MANAGEMENT TOOLS FOR IMPROVING CONSTRUCTION SMES PROJECT PERFORMANCE</p> <p>Authors: Chijioke Emere, Innocent Musonda and Chioma Okoro</p>	<p>Authors: Emmanuel Etsename and Abayomi Ilesanmi</p> <p><b>Paper No: 117</b></p> <p>TITLE: THE INFLUENCE OF LASER PROCESS PARAMETERS ON THE CLAD GEOMETRY OF A HIGH ENTROPY ALLOY USING RESPONSE SURFACE METHODOLOGY</p> <p>Authors: Modupeola Dada, Patricia Popoola, Ntombizodwa Mathe, Sisa Pityana, Samson Adeosun and Olufemi Aramide</p>	
<p><b>2nd Session: 14H - 16H</b></p>	<p><b>Paper No: 19</b></p> <p>TITLE: A NARRATIVE REVIEW ON LEAD POISONING AND ANTI-SOCIAL BEHAVIOUR IN SUB-SAHARAN COUNTRIES</p> <p>Authors: Thokozani P Mbonane</p> <p><b>Paper No: 38</b></p> <p>TITLE: NOT THE “REGULAR” FIT: A SOCIO-TECHNICAL SYSTEMS APPROACH TO DESIGNING EYEWEAR IN SOUTH AFRICA</p> <p>Authors: Marcha Naudé and Angus Donald Campbell</p>	<p><b>Paper No: 64</b></p> <p>TITLE: APPLICATION OF ARTIFICIAL BEE COLONY (ABC) ALGORITHM IN A BIG-BOX STORE OR RETAIL FACILITY</p> <p>Authors: Modestus Okwu, Lagouge Tartibu and Ifeyinwa J. Orji</p> <p><b>Paper No: 105</b></p> <p>TITLE: INTERNET OF POSTAL THINGS (IOPT) UNLOCKING POTENTIAL IN THE POSTAL VALUE CHAIN FOR COMMUNITY DEVELOPMENT: AN APPROPRIATE TECHNOLOGY PERSPECTIVE</p> <p>Authors: Kgabo Mokgohloa, Kemlall Ramdass, John Alfred Trimble and Sbusiso Xaba</p>	

## Day 3: 27 November 2020

	Room B	Room C	Room D
<b>1st Session: 11h - 13h</b>	B3-1 <b>Paper No: 42</b> TITLE: THE INCIDENCE OF BRUCellosIS IN LIVESTOCK: THE CASE OF SOUTH AFRICA BETWEEN 2010-2019 Authors: Mpinane Senekane, Shalin Bidassey-Manilal and Thokozani Mbonane	C3-1 <b>Paper No: 137</b> TITLE: SYNTHESIS OF A NOVEL HETEROGENEOUS BASIC CATALYST FOR PRODUCTION OF BIODIESEL FROM WASTE OIL Authors: Leshoboro Molapo, Amos Adeniyi, Richard Mbaya and Andries Kolesnikov	D3-1
	<b>Paper No: 85</b> 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 <b>Paper No: 41</b> 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	<b>Paper No: 167</b> TITLE: SIMULATING THE PASSIVE INDOOR ENVIRONMENTAL IMPACT OF THREE ROOF INSULATION TYPES ON URBAN RESIDENCES IN LAGOS, NIGERIA Authors: Henry Igugu and Jacques Laubscher <b>Paper No: 163</b> TITLE: ADAPTATION TO THE IMPACT OF DROUGHT ON WATER AVAILABILITY IN COMMUNITIES: A REVIEW Authors: Irene Majang, Leana Esterhuizen and Kgomotso Lebelo	
<b>1st Session:</b>			

<p style="text-align: center;"><b>1st Session: 11h - 13h</b></p>	<p><b>Paper No: 158</b> TITLE: THE RETROFITTED GARI ROASTING STOVE: Concept, Design and Analysis</p> <p>Authors: Donald Amrago, Alex Donyinah and Emmanuel Appiah</p> <p><b>Paper No: 134</b> TITLE: SIMULATION STUDY FOR POTENTIAL USE OF EUTECTIC PLATES IN SOUTH AFRICAN MEDIUM REFRIGERATED TRANSPORT VEHICLE</p> <p>Authors: Thandiwe Radebe, Zhongjie Huan and Jeffrey Baloyi</p> <p><b>Paper No: 145</b> TITLE: DESIGN AND IMPLEMENTATION OF A TORQUE AUGMENTED MOBILITY AID</p> <p>Authors: Sinetemba Hlungulu</p>	<p><b>Paper No: 157</b> TITLE: SUSTAINABILITY OF AFRICAN COUNTRIES' COMPETITIVE INDUSTRIAL PERFORMANCES THROUGH THE OPEN QUINTUPLE HELIX MODEL: ANALYSIS USING INNOVATION SYNERGY INDEX</p> <p>Authors: Bernadin Geraud Comlan Ahodode and Henri Ngoa Tabi</p> <p><b>Paper No: 159</b> TITLE: ACCESSIBLE RAIL STATION PLATFORM INDEPENDENT GAP FILLER FOR OF PERSONS WITH REDUCED MOBILITY</p> <p>Authors: Emmanuel Matsika and Lingong Li</p> <p><b>Paper No: 156</b> TITLE: A COMMUNITY-INFORMED CONCEPT OF A RAINWATER HARVESTING DESIGN WITH POTENTIAL TO REDUCE WATER SCARCITY IN RURAL SOUTH AFRICA</p> <p>Authors: Pertina Nyamukondiwa, Prof. Joseph Francis, Dr. Marizvikuru Manjoro and Patrick Kapila</p>	
--	--	--	--

