

7th **EPC** 7th EUROPEAN CONFERENCE and **NOKOBETEF 12** on PROTECTIVE CLOTHING 23-25 MAY 2016 ILICA HOTEL CESME, IZMIR, TURKEY

INNOVATIVE PROTECTIVE CLOTHING IN A CHANGING WORLD:
PROTECTIVE, COMFORTABLE, INTELLIGENCE INTEGRATED, ECOLOGICAL AND ECONOMICAL

PROGRAMME



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European **S**ociety of **P**rotective **C**lothing

KIVANÇ
Group

09.30-10.15 Registration

10.15-10.45 Opening Ceremony (Hall A)
- Opening Speeches

10.45-11.00 Coffee Break



11.00-11.30 Keynote Speech (Hall A)
Session Chair: George HAVENITH

- FROM NORDIC COOPERATION TO GLOBAL NETWORKING - THE HISTORY OF ESPC AND ECPC - Helena MÄKINEN
Finnish Institute of Occupational Health / FINLAND

11.30-12.00 Session 1 (Hall A)
State-of-Art: Protective Textiles Market
Session Chair: George HAVENITH

- FACTORS DRIVING THE EVOLUTIONARY PROTECTIVE CLOTHING MARKET - Mary Lynn LANDGRAF
U.S. Dept. Of Commerce / USA
- TEXTILE TRENDS IN THE PPE-MARKET - Manuela BRAEUNING
Albstadt-Sigmaringen University / GERMANY

12.00-13.00 ESPC Board Meeting (Hall C)

12.00-14.00 Joining for Lunch



14.00-15.00 Session 2 (Hall A)
Thermal Protective Clothing
Session Chair: Kalev KUKLANE

- EFFECTS OF MOISTURE ON THERMAL PROTECTIVE PERFORMANCE FOR FIRE-FIGHTING SYSTEMS - Juan CAO¹,
Guowen SONG²
¹Tianjin Polytechnic University/ CHINA, ²Iowa State University/ USA
- IS COMPLETION TIME OF THE COURSE VALID ENOUGH TO EVALUATE FIREFIGHTERS' PERFORMANCE? - Siyeon KIM¹,
Joo-Young LEE¹
Seoul National University/ SOUTH KOREA
- REPROCESSING OF FIRE FIGHTER SUITS - Bianca-Michaela WOELFLING¹, Edith CLASSEN¹
Hohenstein Institute For Textile Innovation GGmbH / GERMANY

- ▶ **ENVIRONMENTAL IMPACT OF BODY ARMOURS BY MEANS OF LCA** - Enrico FATARELLA¹, Dionysis SIAMIDIS², Alicia MORIANA LOPEZ³
¹Next Technology Tecnotessile/ ITALY, ²Siamidis SA/ GREECE, ³INT

15.00-15.35

Poster Session: Thermal Protective Clothing (Hall A)
Session Chair: Kaley KUKLANE

- ▶ **DEVELOPMENT OF A MULTIFUNCTIONAL SUIT FOR WILDLAND AND STRUCTURAL FIREFIGHTING**
Gilda SANTOS, Ana BARROS
Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL
- ▶ **FEASIBILITY STUDY OF INNOVATIVE MILITARY PROTECTION TEXTILE SYSTEM**
Gilda SANTOS¹, Cristina OLIVEIRA¹, Ana BARROS¹, Patricia FERREIRA²
¹Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL, ²DAMEL Confecção De Vestuário, LDA./ PORTUGAL
- ▶ **MECHANICAL PROPERTIES OF CONTINUOUS GRAPHENE OXIDE FIBERS PREPARED BY WET SPINNING**
Esma Nur GÜLLÜOĞLU¹, Rokhsareh BAKHTIARI², Sajjad GHOBADI², Lale İŞIKEL ŞANLI², Selmiye ALKAN GÜRSEL², Elif ÖZDEN YENİGÜN¹
¹Istanbul Technical University/TURKEY, ²Sabancı University/TURKEY
- ▶ **EVALUATION OF MANUAL DEXTERITY OFFERED BY TEN FIRE PROTECTIVE GLOVES IN DRY AND WET CONDITIONS**
Dami KIM¹, Joo-Young LEE¹
Seoul National University/ SOUTH KOREA
- ▶ **AN INVESTIGATION OF PERFORMANCE EVALUATION OF PROTECTIVE CLOTHING**
Ayça GÜRARDA
Uludağ University/ TURKEY
- ▶ **INVESTIGATION ON THE EFFECTIVENESS OF TWO PERSONAL COOLING STRATEGIES IN HEATWAVES**
Chengjiao ZHANG, Wenfang SONG, Faming WANG
Soochow University/ CHINA
- ▶ **THE EFFECTS OF WATER REPELLENT FINISHING ON PHYSICAL CHARACTERISTICS AND THERMAL COMFORT OF TEXTILE MATERIALS USED IN OUTER ENVIRONMENTS**
Yaşar ERAYMAN, Yasemin KORKMAZ
Kahramanmaraş Sütçü İmam University / TURKEY
- ▶ **INVESTIGATION OF THE THERMAL COMFORT PROPERTIES OF TEXTILES USED IN READY-BEDS**
Yasemin KORKMAZ, Sedat ÖZER, Yaşar ERAYMAN
Kahramanmaraş Sütçü İmam University / TURKEY

15.35-15.55

Coffee Break



15.55-16.55

Session 3 (Hall A)

Thermal Protective Clothing

Session Chair: Anugrah SHAW

- ▶ **ON THE EFFECTIVENESS OF WET CLOTHING IN REDUCING HEAT STRAIN DURING A HEATWAVE**
Wenfang SONG¹, Chengjiao ZHANG¹, Fanru WEI¹, Faming WANG¹
Soochow University/ CHINA
- ▶ **A NEW PROTOCOL TO CHARACTERIZE THERMAL PROTECTIVE PERFORMANCE OF GARMENTS USING INSTRUMENTED FLASH FIRE AND SPRAY MANNEQUIN**
Farzan GHOLAMREZA¹, Mark ACKERMAN¹, David TORVI², Nancy KERR¹, Guowen SONG³
¹University of Alberta/ CANADA, ²University of Saskatchewan/ CANADA, ³Iowa State University/ USA
- ▶ **AN APPROACH WITH 2 PHASE CHANGES (PCM+) IMPROVES AND PROLONGS THE COOLING EFFECT**
Kalev KUKLANE¹, Matthew RAOUFI², Elsa LINDBERG³
¹Lund University/ SWEDEN, ²Esparlous AB/ SWEDEN, ³Lund University/ SWEDEN
- ▶ **PROPOSAL OF A TEST METHOD FOR THE DETERMINATION OF THE EFFICACY OF PROTECTION OFFERED BY TEXTILES EXPOSED TO LIQUID HYDROCARBON FIRES**
Shelley KEMP¹, Martin CAMENZIND¹, Simon ANNAHEIM¹, Renè ROSSI¹
Swiss Federal Laboratories for Materials Science and Technology(EMPA)/ SWITZERLAND

24 MAY 2016 - TUESDAY

08.30-09.00

Registration

09.00-10.00

Session 1 (Hall A)

Protective Clothing against Cold

Session Chair: Peter HEFFELS

- ▶ **EVALUATION OF HEATING PROTOCOLS WITH GRAPHENE HEATER FOR KOREAN NAVY DUTY UNIFORM IN WINTER**
Sora SHIN¹, Joo-Young LEE¹
Seoul National University/ SOUTH KOREA
- ▶ **SILVER NANOWIRE COATED HEATABLE TEXTILES**
Doğa DOĞANAY, Şahin COŞKUN, Hüsnü Emrah ÜNALAN
Middle East Technical Universtiy/ TURKEY

Session 2 (Hall B)

Protective Clothing against Mechanical Effects

Session Chair: Simon ANNAHEIM

- ▶ **EFFECT OF WOVEN STRUCTURE ON CUT RESISTANT PROPERTY OF KEVLAR FABRIC**
Mazhar Hussain PEERZADA¹, Anam MEMON¹, Sadaf Aftab ABBASI², Awais KHATRI¹
¹Mehran University of Engineering & Technology/ PAKISTANI, ²Ege University/ TURKEY

► **EVALUATION OF BARRIER® EASYWARM ON HEALTHY VOLUNTEERS IN THREE DIFFERENT CLIMATES**

Kalev KUKLANE¹, Amitava HALDER¹, Karin LUNDGREN¹, Chuansi GAO¹, Magnus OSTBERG², Lisa SKINTEMO², Anna GROU², Jens TORNVIST², Karin GANLOV², Mikael ÅSTRÖM²

¹Lund University/ SWEDEN, ²Mölnlycke Health Care/ SWEDEN

► **PROTECTIVE EFFECT OF WETSUITS FOR SWIMMERS IN COLD WATER: MODELLING RESULTS**

Irena YERMAKOVA¹, Anastasia NIKOLAIENKO¹, Julia TADEIEVA¹, Leslie MONTGOMERY²

¹International Scientific-Training Center for Information Technologies and Systems / UKRAINE, ²LDM associate / USA

► **DEVELOPMENT OF THE FLEXIBLE PERSONAL PROTECTIVE STRUCTURE WITH SPACER FABRICS**

Sinem ÖZTÜRK¹, Buket DEĞİRMENCİ¹, Hüseyin Erdem YALKIN¹, Simge SAKIN¹, Bekir BOYACI¹
SUN TEKSTİL/ TURKEY

► **DEVELOPMENT OF LIQUID ARMORS FOR BODY PROTECTION SYSTEMS**

Oylum ÇOLPANKAN¹, Sema YILDIZ¹, Mehmet Deniz GÜNEŞ¹, Fikret ŞENEL², Metin TANOĞLU¹

¹Izmir Institute of Technology/ TURKEY, ²Bariş Elektrik Endüstrisi A.Ş./ TURKEY

► **UNIAXIAL AND BIAXIAL MECHANICAL BEHAVIOR OF HYBRID CARBON/ARAMID WOVEN FABRICS**

Emin SÜNBÜLOĞLU, Elif ÖZDEN YENİGÜN, Meral TUNA, Ergün BOZDAĞ

¹Istanbul Technical University/ TURKEY

10.00-10.20 Coffee Break

Session 3 (Hall A)

10.20-11.20 Thermoregulatory Systems for Protective Clothing
Session Chair: Jean LEONARD

► **COMPARISON OF NOVEL CORE TEMPERATURE MEASURING METHODS WITH CONVENTIONAL METHODS: TELEMETRIC INTESTINAL TEMPERATURE**

CP BOGERD¹, KB VELT², CL KOERHUIS³, MPPH VAN BEURDEN⁴, Simon ANNAHEIM⁵, HAM DAANEN⁴

¹Netherlands Organisation for Applied Scientific Research(TNO)/ NETHERLAND, ²VU University Amsterdam/ NL, ³Netherlands Organisation for Applied Scientific Research(TNO) / NETHERLAND, ⁴Netherlands Organisation for Applied Scientific Research(TNO) / NETHERLAND, ⁵Swiss Federal Laboratories for Materials Science and Technology(EMPA)/ SWITZERLAND

Session 4 (Hall B)

Smart Systems for Protective Clothing
Session Chair: Ender YAZGAN BULGUN

► **SPECIFICATION OF HUMAN SUBJECTS AND FIELD TRIALS PROTOCOLS FOR SMART ACCLIMATIZATION TEXTILE SYSTEMS**

Gilda SANTOS¹, Cristina OLIVEIRA¹, Ana BARROS¹, Patricia FERREIRA²

¹Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL,

²DAMEL Confecção De Vestuário, LDA./ PORTUGAL

► **THE ADVANTAGES IN FIRE SAFETY USING FUNCTIONAL SMART TURNOUT GEAR**

Daniela ZAVEC PAVLINIC¹, Miklos KOZLOVSZKY², Andreja ODER³, Klaus RICHTER⁴

University of Maribor/ SLOVENIA

► **LIGHTWEIGHT, FLEXIBLE AND SMART PROTECTIVE CLOTHING FOR LAW ENFORCEMENT PERSONNEL**

Silvia PAVLIDOU

MIRTEC S.A. (Materials Industrial Research And Technology Center)/GREECE



► **SWEATING TORSO: PHYSIOLOGICAL IMPACT OF FIREFIGHTER CLOTHING**

Martin CAMENZIND¹, Simon ANNAHEIM¹, Agnes PSIKUTA¹, René ROSSI¹
Swiss Federal Laboratories for Materials Science and Technology (EMPA)/ SWITZERLAND

► **COMPARISON OF THERMAL INSULATION EVALUATED BY QUESTIONNAIRE, THERMAL MANIKIN AND HUMAN TESTS**

Kirsi JUSSILA¹, Sirkka RISSANEN¹, Pertti TUHKANEN¹, Jouko REMES¹, Satu MÄNTTÄRI¹, Juha OKSA¹, Hannu RINTAMÄKI¹
Finnish Institute of Occupational Health/ FINLAND

► **SENSOR-BASED AIRBAG FOR PROTECTION FROM DAMAGE INDUCED BY FALLING**

Jan Vincent JORDAN¹, Gesine KOPPE¹, Michael LEHNERT², Hyo-dae KIM³, Michael MIN⁴, Yves-Simon GLOY¹, Thomas GRIES¹
¹Aachen University/ GERMANY, ²ABS Peter Aschauer GmbH/ GERMANY, ³Saenal Tech-Tex Co., Ltd./ SOUTH KOREA, ⁴Korea Dyeing&Finishing Technology Institute (Dyotec)/ SOUTH KOREA

11.20-12.00 Poster Session: Thermoregulatory Systems for Protective Clothing (Hall A)
Session Chair: Jean LEONARD

► **ECOLOGICAL DYEING & FINISHING PROCESS OF PROTECTIVE COMFORTABLE WOOL**

Gilda SANTOS¹, Ana BARROS¹, Rosa Maria SILVA¹, Augusta SILVA¹, Helena MAGALHÃES², Manuel PINHEIRO²
¹Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL, ²Tinturaria Têxtil SA (TINAMAR) / PORTUGAL

► **PROPOSAL FOR ADEQUATE EVALUATION TECHNIQUES OF SMART ACCLIMATIZATION TEXTILE SYSTEMS**

Gilda SANTOS¹, Cristina OLIVEIRA¹, Ana BARROS¹, Patricia FERREIRA²
¹Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL, ²DAMEL Confecção De Vestuário, LDA. / PORTUGAL

► **PROTECTION AND COMFORT OF FIRE-FIGHTERS' PERSONAL PROTECTIVE CLOTHING**

Yusuf SAĞLAM
Kıvanç Group / TURKEY

► **EVALUATING ERGONOMIC PROPERTIES OF NEWLY DESIGNED CHINESE FEMALE FIREFIGHTING CLOTHING**

Dandan LAI, Faming WANG
Soochow University / CHINA

► **THERMAL COMFORT ANALYSIS OF FIREFIGHTER'S UNIFORMS**

Selin Hanife ERYÜRÜK, Senem KURŞUN BAHADIR, Fatma KALAOĞLU
Istanbul Technical University / TURKEY

► **DEVELOPMENT OF A SIMULATION APP FOR THERMAL CLOTHING ENGINEERING DESIGN**

Benjamin VAN DER SMISSEN, Peter VAN RANSBEECK, Alexandra DE RAEVE, Simona VASILE, Joris COOLS, Mathias VERMEULEN
University College Ghent/ BELGIUM



13.40-14.00 **Product Introductory Meeting - KIVANÇ GROUP (Hall A)**
Session Chair: Eric van WELY

14.00-14.35 **Poster Session: Functionalization for Protective Textiles (Hall A)**
Session Chair: Eric van WELY

- ▶ **FUNCTIONAL TEXTILE WITH ELECTROSPUN NANOFIBERS CONTAINING POLYESTER AND CHITOSAN**
Nagihan OKUTAN¹, Ahmet ÇİFTÇİ², Filiz ALTAY¹
¹Istanbul Technical University / TURKEY, ²Çiftçiler Ltd./ TURKEY
- ▶ **ENHANCED PHOTOCATALYTIC ACTIVITY ON TEXTILES THROUGH UTILIZATION OF NOVEL DOPANTS**
Aseña CERHAN¹, Iuliana DUMITRESCU², G. Bahar BAŞIM¹
¹Ozyegin University/ TURKEY ²National Textile Institute Romania/ ROMANIA
- ▶ **MACROPOROSITY AND THE ULTRAVIOLET PROTECTION FUNCTION OF WOVEN FABRICS**
Polona Dobnik DUBROVSKI¹, Abhijit MAJUMDAR²
¹University of Maribor / SLOVENIA, ²Indian Institute of Technology Delhi / INDIA
- ▶ **GENERATING OF PASSIVE NOISE CANCELING HEADPHONES BY USING RECYCLED MATERIALS**
Ulaş ÇINAR¹, Aliye KAŞARCI HAKAN¹, Emre GÜMÜŞ²
¹Istanbul Yeni Yüzyıl University / TURKEY, ²Istanbul Gedik University/ TURKEY
- ▶ **A NEW ROUTE FOR SYTHESIS OF ANTIBACTERIAL TIN (IV) OXIDE NANOPARTICLES FOR FABRICS**
Aslı BAYSAL¹, Banu Yeşim BÜYÜKAKINCI¹, Gül Şirin USTABAŞI¹
Istanbul Aydın University/ TURKEY
- ▶ **LATEST DEVELOPMENTS IN THE EVALUATION OF MICROBIAL BARRIER PROPERTIES OF PROTECTIVE CLOTHING**
Mark CROES¹, Jean LÉONARD¹, Yvette ROGISTER¹
Belgian Textile Research Centre(CENTEXBEL) / BELGIUM
- ▶ **FUNCTIONAL DISPOSABLE FACE MASKS FOR MALODOROUS SURGICAL OPERATIONS**
Özge YÜKSEL¹, Beliz BOZALP¹, Gizem Ceylan TÜRKOĞLU¹, Tolga ÖNDER², Ayşe Merih SARIŞIK¹, Salih OKUR³, Ayşenur DURU³
¹Dokuz Eylül University/ TURKEY ²Kars Sarıkamış Public Hospital/ TURKEY, ³Izmir Katip Çelebi University/ TURKEY

14.35-14.55 **Coffee Break**



14.55-15.40 **Session 5 (Hall A)**
Thermoregulatory Systems for Protective Clothing
Session Chair: Eric van WELY

- ▶ **INFLUENCE OF THE MAINTENANCE ON THE PROTECTIVE FUNCTION AND THE COMFORT OF PPE**
Edith CLASSEN
Hohenstein Institute / GERMANY
- ▶ **ASSESSMENT OF SENSORIAL COMFORT OF PROTECTIVE CLOTHING FABRICS**
Simona VASILE¹, Alexandra DE RAEVE¹, Benny MALENGIERS², Johanna LOUWAGIE², Myrène VANDERHOEVE¹, Lieva VAN LANGENHOVE²
¹University College Gent/ BELGIUM, ²Gent University/ BELGIUM
- ▶ **CLOTHING PROTECTION AND WEARING COMFORT**
Simon ANNAHEIM¹, Tom PITTS¹, Matthew MORRISSEY¹, Pauline WEISSER², André CAPT², Martin CAMENZIND¹, René M. ROSSI¹
¹Swiss Federal Laboratories for Materials Science and Technology (EMPA)/ SWITZERLAND, ²DuPont/ USA

15.40-16.00 **Coffee Break**

16.00-16.30 **Session 7 (Hall A)**
Protective Clothing against Pesticide
Session Chair: Rene ROSSI

- ▶ **VALIDATION OF METHOD TO MEASURE CUMULATIVE PERMEATION OF CHEMICAL WITH LOW VAPOR PRESSURE THROUGH TEXTILE AND GLOVE MATERIALS**
Anugrah SHAW¹, Ana Carla COLEONE², Julie MERCKLING³, Hyeshin YOON⁴, Nicolas BLANC⁵, Eva COHEN⁶
¹University of Maryland Eastern Shore/ USA, ²São Paulo State University/ BRAZIL, ³French Institute Textile and Apparel(IFTH) / FRANCE, ⁴Korea Apparel Testing & Research Institute/ SOUTH KOREA, ⁵CTC Groupe / FRANCE, ⁶Centro Nacional de Medios de Protección/ SPAIN
- ▶ **PERSONAL PROTECTIVE EQUIPMENT AS A MEASURE TO MINIMISE HUMAN EXPOSURE TO PESTICIDES**
Dimitra NIKOLOPOULOU¹, Kyriaki MACHERA¹
Benaki Phytopathological Institute/ GREECE

Session 6 (Hall B)
Protective Clothing for Medical Applications
Session Chair: Daniela ZAVEC PAVLINIC

- ▶ **EMERGING FACTORS RELATED TO THE DESIGN, SELECTION, AND USE OF PROTECTIVE CLOTHING AGAINST HIGHLY INFECTIOUS DISEASES**
Jeffrey STULL¹, Christina STULL¹, Huiju PARK², Susan ASHDOWN², Jason COLE³, Judith MULCAY³, Jason ALLEN⁴
¹International Personnel Protection, Inc./ USA, ²Cornell University/ USA, ³Kappler, Inc./ USA, ⁴Intertek Testing Services/ USA
- ▶ **EFFECT OF ADDITIVE PARTICLE SIZE ON X-RAY PROTECTIVE COATED FABRICS**
Nebahat ARAL¹, Cevza CANDAN², Banu UYGUN NERGİS²
¹Istanbul Kavram Vocational School / TURKEY, ²Istanbul Technical University / TURKEY
- ▶ **MULTIFUNCTIONAL TICK REPELLENT TEXTILES**
Wazir AKBAR¹, G. Bahar BAŞIM¹
Özyeğin University / TURKEY

Session 8 (Hall B)
Thermoregulatory Systems for Protective Clothing
Session Chair: Helena MAKINEN

- ▶ **FABRIC WATER ABSORPTION & WETNESS PERCEPTION**
Margherita RACUGLIA, Simon HODDER, George HAVENITH
Loughborough University/ UK
- ▶ **ERGONOMIC TEXTILE CAMOUFLAGE SOLUTION FOR MILITARY SOLDIERS**
Gilda SANTOS¹, Ana BARROS¹, Augusta SILVA¹, Patrícia FERREIRA²
¹Centro Tecnológico Têxtil e Vestuário(CITEVE) / PORTUGAL, ²DAMEL Confecção De Vestuário, LDA. / PORTUGAL



16.30-16.45 **Poster Session: Protective Clothing against Pesticide (Hall A)**
Session Chair: Rene ROSSI

- ▶ **THERMOREGULATORY RESPONSES TO PESTICIDE PROTECTIVE CLOTHING BY PROTECTIVE LEVELS**
Do-Hee KIM, Dahee JUNG, Joo-Young LEE
Seoul National University/ SOUTH KOREA
- ▶ **VARIABILITY ON TESTS RESULTS USING ISO 17491-4 WITH DIFFERENT SPRAYING NOZZLE**
Hamilton Humberto RAMOS¹, Anugrah SHAW², Viviane Corrêa Aguiar RAMOS¹, Polyane Barbalho DA SILVA¹
¹Centro De Engenharia E Automação (CEA)/ BRAZIL, ²University of Maryland Eastern Shore/ USA
- ▶ **COMPARISON OF DIFFERENT PROTECTIVE MATERIALS USED FOR PERSONAL PROTECTIVE EQUIPMENT FOR PESTICIDE APPLICATIONS**
Kyriaki MACHERA, Angelos TSAKIRAKIS, Konstantinos KASIOTIS
Benaki Phytopathological Institute/ GREECE

16.45-17.45 **ECPC General Meeting (Hall A)**

19.45 **Conference Gala Dinner**



- WEDNESDAY

08.30-09.00 **Registration**

09.00-10.00 **Session 1 (Hall A)**
Protective Clothing against Molten Metal
Session Chair: Manuela BRAEUNING

- ▶ **PERFORMANCES OF DIFFERENT WORKWEAR FABRICS USED IN MOLTEN METAL INDUSTRY**
Bengi KUTLU, Tuğçem BİTGEN
Dokuz Eylül University/ TURKEY
- ▶ **INNOVATIVE FINISHING APPROACHES FOR IMPROVED REPELLENCY TOWARDS METAL SPLASHES**
Kim HECHT¹, Torsten TEXTOR², Eva GIERLING¹, Edith CLASSEN¹
¹Hohenstein Institute/ GERMANY, ²Deutsches Textilforschungszentrum Nord-West GGmbH/ GERMANY
- ▶ **NEW TESTING PRINCIPLES FOR UV-PROTECTIVE PROPERTIES OF WELDING PROTECTION CLOTHING**
Jan BERINGER
Hohenstein Institute/ GERMANY
- ▶ **ELECTRICIANS' PROTECTIVE CLOTHING WITH BUILT-IN LED LIGHT FOR CHALLENGING OUTDOOR WORK**
Emma KAAPPA, Aki HALME, Taina POLA, Jukka VANHALA
Tampere University of Technology/ FINLAND

10.00-10.25 **Poster Session: Protective Clothing for Medical Application and Arc-Flash Risks (Hall A)**
Session Chair: Manuela BRAEUNING

- ▶ **PROTECTIVE CLOTHING AGAINST ARC FLASH RISKS**
Hendrik BEIER
Sächsisches Textilforschungsinstitut e.V.(STFI E.V.)/ GERMANY
- ▶ **STUDYING A NEW CHARACTERISATION OF PPE PERFORMANCE FOR ARC-FLASH PROTECTION**
Jean-claude DUART¹, David CALDERON², Jorge MORENO³
¹DuPont/ USA, ²Aitex/ SPAIN, ³ITE
- ▶ **DESIGN PARAMETERS FOR A THERAPEUTIC RHEUMATOID ARTHRITIS GLOVE**
Gözde GÖNCÜ BERK, Neşe TOPÇUOĞLU
Istanbul Technical University/ TURKEY
- ▶ **ANTIBACTERIAL COATING OF TEXTILES WITH ELECTROSPUN PVA/ZNCL₂ NANOFIBERS**
Büşra BAKIR¹, Gözde KILIÇ², Filiz ALTAY¹
¹Istanbul Technical University/ TURKEY, ²Istanbul University/ TURKEY
- ▶ **SMART CLOTHES**
Ekrem Hayri PEKER
Tekstil Araştırmaları Derneği (TEKSAD)/ TURKEY

10.25-10.45 **Coffee Break**



Session 2 (Hall A)

10.45-11.30 **Functionalization for Protective Textiles**
Session Chair: Kirsi JUSSILA

- ▶ **LAYER BY LAYER ASSEMBLY OF HALLOYSITE NANOCCLAY BASED FLAME RETARDANT NANOCOMPOSITE ON COTTON FABRIC**
Şule SULTAN UĞUR¹, Ayşe Merih SARIİŞİİK²
¹Süleyman Demirel University/ TURKEY, ²Dokuz Eylül University/ TURKEY
- ▶ **PERFORMANCE PROPERTIES OF PROTECTIVE LEATHER GLOVES**
Nilay ÖRK¹, Gökhan ZENGİN¹, Eylem KILIÇ², Arife Candaş ADIGÜZEL ZENGİN¹
¹Ege University/ TURKEY, ²Uşak University/ TURKEY
- ▶ **BACTERIA SENSITIVE SMART TEXTILES COATED WITH ELECTROSPUN NANOFIBERS**
Nagihan OKUTAN, Büşra BAKIR, Filiz ALTAY
Istanbul Technical University/ TURKEY

11.30-13.00 **Joining for Lunch**



13.00 **Social Program**

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