



**IULTCS CONGRESS 2019**

**“BENIGN BY DESIGN”  
LEATHER — THE FUTURE THROUGH  
SCIENCE AND TECHNOLOGY**

**JUNE 25–28, 2019  
DRESDEN – GERMANY**

*International Congress Centre Dresden*

# **SCIENTIFIC PROGRAMME\***

[www.iultcs2019.org](http://www.iultcs2019.org)  
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*\*Please note, the scientific programme might  
be subject to change.*

10:00 a.m. — 12:00 a.m.

Seminar 3/4

**IUE MEETING**

12:00 a.m. — 1:00 p.m.

Seminar 5/6

**AICLST MEETING**

1:00 p.m. — 2:00 p.m.

Seminar 3/4

**IUR MEETING**

2:00 p.m. — 3:00 p.m.

Seminar 5/6

**IUT MEETING**

3:00 p.m. — 5:00 p.m.

Seminar 3/4

**IULTCS EC MEETING**

4:00 p.m. — 8:00 p.m.

Foyer

**START REGISTRATION**

6:00 p.m. — 8:10 p.m.

Hall 1/2

**IULTCS OPENING CEREMONY**

6:00 p.m. Doors open

6:30 p.m. Start Opening Ceremony

8:15 p.m. — 10:00 p.m.

Terrace Level with Foyer

**WELCOMING RECEPTION**

8:00 a.m. — 9:00 a.m.

Foyer — Hall 1/2

**REGISTRATION — DOORS OPEN**

9:00 a.m. — 9:15 a.m.

Hall 1/2

**GREETINGS**

9:15 a.m. — 10:00 a.m.

Hall 1/2

**HEIDEMANN LECTURE**9:15 a.m. As tough as leather: Macro to nano scale perspectives of collagen stability (#48) [K. L. Goh](#)

10:00 a.m. — 10:30 a.m.

Exhibition Hall

**COFFEE BREAK**

10:30 a.m. — 11:30 a.m.

Hall 1/2

**SESSION 1**10:30 a.m. Fine hair on American bovine leathers (#108) [L. A. Zugno](#) / A. Rhein10:45 a.m. Biotechnology for environmentally-friendly leather production (#297) [J. Y. Liu](#) / G. Holmes11:00 a.m. The Hunt for Red Microba: Identifying the microbial agents in “red heat” contamination of salt-cured bovine hide (#300) [S. Grace](#) / M. Ahn / M. L. Patchett / G. E. Norris11:15 a.m. Structure and tanning properties of dialdehyde carboxymethyl cellulose: Effect of degree of substitution (#94) [Y. Yi](#) / W. Ding / C. Huang / Y.-N. Wang / B. Shi11:30 a.m. Investigation on Reducing Chromium Quantity in Chromium Containing Wastes of Leather Industry Using Oyster Mushroom (*Pleurotus ostreatus*) (#289) [E. E. E. Bayramoglu](#) / A. Özcelik / M. Çetin / E. Eren

11:45 a.m. — 1:00 p.m.

Restaurant — Exhibition Hall

**LUNCH BREAK****POSTER SESSION 1 (INDEX)**

1:00 p.m. — 1:20 p.m.

Hall 1/2

**KEY NOTE**

1:00 p.m. **Sulfide unhairing: rethinking the received wisdom (#228)**  
 W. R. Wise / A. D. Ballantyne / A. D. Covington

1:20 p.m. — 2:20 p.m.

Hall 1/2

**SESSION 2**

1:20 p.m. **Modern unhairing technologies for effective control of H<sub>2</sub>S release from Beamhouse operations (#55)**  
 J. Fennen / C. Gabagnou / D. Herta

1:35 p.m. **A Novel Preservation-cum-Unhairing Process for Sustainable Leather Manufacturing: An Unconventional Approach in Leather Making (#245)** R. R. Jonnalagadda / S. Murali / A. Rathinam / T. Palanisamy

1:50 p.m. **Unhairing and Fiber bundle-opening of Cowhides using KCl and LiBr/[AMIm]Cl Assisted Neutral Protease for Leather Making (#223)** H. Liu / Q. Zhang / Y. Zhang / X. Li / K. Tang / J. Liu / X. Zheng / Y. Pei

2:05 p.m. **Adsorptive removal of sulfate, phosphate and chloride by Mg-Al and Zn-Al Layered Double Hydroxides from aqueous solutions (#241)** M. Maia / O. Perez-Lopez / M. Gutterres

2:20 p.m. — 2:45 p.m.

Hall 1/2

**SPEED SCIENCE**

2:20 p.m. **Constructive application of marine algae for collagen stabilization: Molecular insight on its interaction with leather protein (#232)** G. C. Jayakumar / A. Tamil Selvi / V. J. Sundar / S. V. Kanth

2:23 p.m. **Investigation on the release kinetics of chrome from finished chrome tanned leather (#138)** J. W. Long / Q. L. Peng / R. Wang / H. W. Zhang / B. Shi

2:26 p.m. **Preservation of Bovine Hide using Less Salt with Low Concentration of Antiseptic (#265)** M. I. Sarker / W. Long III / C.-K. Liu / N. Latona / G. Piazza

2:32 p.m. **A Novel Microspheres Composite Hydrogels Cross-linked by Methacrylated Gelatin Nanoparticles: Enhanced Mechanical Property and Biocompatibility (#45)**  
 C. Wang / C. Mu / W. Lin

2:38 p.m. **Review of the scientific and technological literature of fungicides in tannery industry: reducing the use and increasing the efficiency of fungicides in the leather industry (#195)** Z. Biehl

2:41 p.m. **Analysis of the Functional Components of Acid Protease and Investigation of Bating Mechanism of Wet-blue (#36)**  
 H. Li / S. Cao / Y. C. Li / D. Y. Zhu / C. H. Jiang / T. P. Yu

2:45 p.m. — 3:30 p.m.

Exhibition Hall

**COFFEE BREAK****POSTER SESSION 2 (INDEX)**

3:30 p.m. — 3:50 p.m.

Hall 1/2

**KEY NOTE**

3:30 p.m. **Brazilian Leather Certification of Sustainability (#32)**  
 A. Flores

3:50 p.m. — 5:05 p.m.

Hall 1/2

**SESSION 3**

3:50 p.m. **Biopolymers for a more sustainable leather (#154)**  
 L. Taddei / F. Ugolini / G. P. Bonino / G. Giacomelli / C. Franceschi / M. Bertoldini / R. Sole / V. Beghetto

4:05 p.m. **Lignin-Modified Phenolic Syntan: A Contributor to Our Bio-Based Solutions (#129)** Y. Ma / P. Berends / M. Wijland / R. Rumnit / R. Pauli / R. Meulenbroek

## DAY 2

JUNE 26 – WEDNESDAY

- 4:20 p.m. **Acrylic resins in wet white** (#147) [O. Ballus](#)
- 4:35 p.m. **Comparative Studies on Effect of cationic and anionic finishing agents on Surface Property of Finished Leather** (#243) [M. W. Wajino](#) / A. D. Dhathathreyan / S. V. K. V. Kanth
- 4:50 p.m. **High Exhaustion Sytem (HES) for leather process: Role of biocatalyst as an exhaustive aid for wet-end** (#235) [G. C. Jayakumar](#) / V. Karthik / A. D. Asan Fathima / A. Tamil Selvi / C. Muralidharan / S. V Kanth

7:00 p.m. – 0:00 midnight **Terrassenufer – Elbe River**

### RIVER CRUISE NIGHT

- 7:00 p.m. Boarding
- 7:30 p.m. Departure
- 10:30 p.m. Arrival back in Dresden Terrasenufer

## DAY 3

JUNE 27 – THURSDAY

8:00 a.m. – 9:00 a.m. **Foyer – Hall 1/2**

### REGISTRATION – DOORS OPEN

Freiberg Leather Days Participants joining

9:00 a.m. – 10:15 a.m. **Seminar 1**

### SESSION 4

- 9:00 a.m. **Ageing processes and characterization methods for historical bookbinding leather** (#23) [M. Anders](#) / K. Marcula / K. Schuhmann
- 9:15 a.m. **Towards a molecular level understanding of chrome tanning: Interplay between collagen structure and reactivity** (#2) Y. Zhang / J. Buchanan / G. Holmes / [S. Prabakar](#)

## DAY 3

JUNE 27 – THURSDAY

- 9:30 a.m. **Denoising and Segmentation of MCT Slice Images of Leather Fiber** (#170) [Y. Hua](#) / J. Lu / H. Zhang / J. Cheng / W. Liang / T. Li
- 9:45 a.m. **Strong skin, not always thick: Comparative structural and molecular analysis of deer skin and cow hide** (#30) [R. Naffa](#) / C. Maidment / G. Holmes / G. Norris
- 10:00 a.m. **3D Image Based Structural Analysis of Leather for Macroscopic Structure-Property Simulation** (#226) [S. Dietrich](#) / H. Schulz / K. Hauch / K. Schladitz / M. Godehardt / J. Orlik / D. Neusius

9:00 a.m. – 10:15 a.m. **Hall 1/2**

### ENGINEERING SESSION 1

- 9:00 a.m. **For the qualification of leather, you need a human! Is that really the case?** (#295) [M. Bruder](#)
- 9:15 a.m. **Automation in a tannery. TanWare® – discontinuous steps, continuous data** (#267) [L. Sauer](#)
- 9:30 a.m. **IRIS, in line system for colour quality control** (#311) [M. Oomens](#) / L. de Luca
- 9:45 a.m. **Steel meets leather – The influence of cutting parameters in the leather splitting process** (#259) [G. E. Hank](#)
- 10:00 a.m. **The New Cutting Edge – taking the shaving process to the next Level** (#310) [P. Kuchler](#) / J. Nijkamp

10:15 a.m. – 11:05 a.m. **Exhibition Hall**

### COFFEE BREAK

### POSTER SESSION 3 (INDEX)

11:05 a.m. – 12:05 p.m. **Seminar 1**

### SESSION 5

- 11:05 a.m. **Traceability of hides and skins: from field to leather** (#212) [T. Poncet](#) / C. Vigier

11:20 a.m. **False Positives II – Chlorophenols identification towards HPLC-DAD-MS analysis compared with ISO 17070:2015 technique (#236)** [G. A. Defeo](#) / M. Borgheresi / M. De Cicco / B. Carpignani

11:35 a.m. **Extraction of New Vegetable Tanning Agent from Coriaria nepalensis Bark and Its Application in Tanning (#145)** [L. Guo](#) / T. Qiang / Y. Ma / X. Wang

11:50 a.m. **Modelling charge across pH and the iso-electric point of bovine collagen during leather manufacture (#256)** [A. D. Ballantyne](#) / S. J. Davis

11:05 a.m. – 12:30 p.m.

Hall 1/2

### ENGINEERING SESSION 2

11:05 a.m. **COLD MILLING: innovative temperature/humidity control on milling operation (#39)** [A. Peruzzi](#) / A. Galiotto

11:20 a.m. **Premium class leather quality – From tanning over embossing to perforating (#302)** [J. P. Hildebrand](#)

11:35 a.m. **Automatic Leather Species Identification using Machine Learning Techniques (#261)** [M. Jawahar](#) / S. V. Kanth / V. Rajangam / T. Selvi

11:50 a.m. **Personal Assistant vs basic sewing machine – The new generation of intelligent sewing systems (#306)** [M. Schäfer](#)

12:05 p.m. **Go Digital: Accelerate Industry 4.0 in the Leather Cutting Room (#254)** [H. Max-Lang](#)

12:05 p.m. – 12:30 p.m.

Seminar 1

### SPEED SCIENCE

12:05 p.m. **Sound absorbing nanofibers from tannery solid waste: Trash to treasure (#255)** [S. Selvaraj](#) / R. R. Jonnalagadda / [N. N. Fathima](#)

12:08 p.m. **Does post tanning chemicals influence sewability of leathers: An approach towards re-instigating the post tanning process (#249)** [G. C. Jayakumar](#) / [K. Phebe Aaron](#) / A. Fathima / V. Swarna

12:11 p.m. **Chemical Safety and Occupational Safety and Health under the banner of REACH, CLP and National Occupational Safety and Health Legislation (#22)** [T. Martin](#)

12:14 p.m. **Use of different pre-treated chromium leather shavings to produce biogas in continuous scale (#244)** [C. S. Gomes](#) / J.-U. Repke / M. Meyer

12:17 p.m. **Keratin derived from tannery cattle hair waste used for the preparation of waterborne polyurethane (#113)** [J. Liu](#) / F. F. Zhang / Z. C. Liu / H. Li / X. S. Li

12:20 p.m. **Closed loop systems for liming and tanning hides and skins at large and cottage-scale (#57)** [R. P. Daniels](#)

12:30 p.m. – 1:35 p.m.

Restaurant – Exhibition Hall

### LUNCH BREAK

#### POSTER SESSION 4 (INDEX)

1:35 p.m. – 1:55 p.m.

Hall 1/2

### KEY NOTE

1:35 p.m. **Automotive leathers – evaluating the performance limits (part II) (#66)** [S. De Vecchi](#) / J. Christner / S. Summa / A. Rama / R. Ampuero / D. Rinaldi

1:55 p.m. – 2:55 p.m.

Hall 1/2

### SESSION 6

1:55 p.m. **Investigation on VOC Content from Car Interior Finishing Systems and Its Influence on Leather Performances (#61)** [R. Pasquale](#) / D. Cisco / T. Pellegrini

2:10 p.m. **Development of sustainable Re-Tanning Agents from Fungal Degradation of Lignosulfonates (#77)** [J. Ammenn](#)

2:25 p.m. **Chrome tanning process and the leather properties under microwave irradiation (#92)** [J. Zhang](#) / J. Wu / W. Chen

2:40 p.m. **Study on the antibacterial properties of leathers tanned with natural tannins and their interactions with shoes inhabiting bacteria (#15)** [E. Poles](#) / A. Polissi / A. Battaglia / S. Giovando / M. Gotti

2:55 p.m. – 3:20 p.m.

Hall 1/2

**SPEED SCIENCE**

- 2:55 p.m. Study on the application of a new multi-epoxy reinforcement agent for sheep leather (#246) X. Pang / N. Liu / W. Ding / X. Liao / Z. Ding
- 2:58 p.m. A pragmatic Approach towards the Manufacture of wet-white Leathers using a bio-polymeric Tanning System (#240) P. N. Kariuki / A. Yasothai / G. C. Jayakumar / S. V. Kanth
- 2:58 p.m. Cleaner Chrome Tanning – Technology of low-chrome tanning without salt, pickling and short procedure (#146) L. Jianxun / F. Yanjuan / M. Hewei
- 3:07 p.m. Advanced diagnostics and innovative solutions for leather defects: *the problem of yellowing* (#78) C. Florio / R. Aveta / G. Calvanese / B. Naviglio

3:20 p.m. – 3:50 p.m.

Exhibition Hall

**COFFEE BREAK****POSTER SESSION 5 (INDEX)**

4:00 p.m. – 5:00 p.m.

Seminar 1

**VGCT MEETING**

7:00 p.m. – 11:55 p.m.

Large Hall

**CONGRESS DINNER**

8:00 a.m. – 9:00 a.m.

Foyer – Hall 1/2

**REGISTRATION — DOORS OPEN**

Freiberg Leather Days Participants joining

9:00 a.m. – 9:20 a.m.

Hall 1/2

**KEY NOTE**

- 9:00 a.m. Minimizing Emissions of automotive leather (#187) V. Rabe / R. Graupner von Wolff / M. Kleban

9:20 a.m. – 10:20 a.m.

Hall 1/2

**SESSION 7**

- 9:20 a.m. Sustainable Value Creation from Leather Solid Wastes: Preparation of Shoe Soling Material using Nano Fillers (#26) S. Gupta / S. Ponsubbiah / S. K. Gupta / S. Mandal
- 9:35 a.m. Extended Surfactants for Leather (#218) A. Kilikli / I. Reetz
- 9:50 a.m. Factors affecting penetration of acrylic resin in crust leather during retanning process (#179) Y. Song / Y. Zeng / M. Cao / B. Shi
- 10:05 a.m. Biopolymer-Liposome composite for Fatliquor Applications – a “green” Approach to optimal Transport and Delivery of natural Oils (#279) N. Bhargavi / D. Aruna / K. J. Sreeram

10:20 a.m. – 10:50 a.m.

Exhibition Hall

**COFFEE BREAK**

10:50 a.m. – 11:10 a.m.

Hall 1/2

**KEY NOTE**

- 10:50 a.m. Capturing the Environmental Impact of Leather Chemicals (#190) M. P. Costello

11:10 a.m. – 12:25 p.m.

Hall 1/2

## SESSION 8

- 11:10 a.m. **Novel blades for shaving – a new approach to understanding the shaving process** (#242) P. Kuchler / T. Witt / A. Nikowski / E. Klüver / M. Meyer
- 11:25 a.m. **Automation in Leather Making – A Cleaner Production Approach** (#271) R. C. Panda / J. Kanagaraj
- 11:40 a.m. **Synthesis and Application of Dendritic-linear Polymer PAMAM-Si for Leather Fatliquoring Process** (#120) X. Wang / S. Sun / H. Wang / J. Li
- 11:55 a.m. **Synthesis of Cationic Protein with High Quaternary Ammonium Coefficient for Adsorption Dyes Application in Leather Retanning** (#150) J. Xu / J. M. Lu / T. D. Li
- 12:10 a.m. **Mesoporous Hollow SiO<sub>2</sub> Spheres Stabilized Pickering Emulsion to Improve Water Vapor Permeability and Water Resistance for Leather Finishing Agent** (#199) Y. Bao / Y. Zhang / J. Ma

12:25 p.m. – 1:00 p.m.

Restaurant – Exhibition Hall

## LUNCH BREAK

1:00 p.m. – 1:45 p.m.

Hall 1/2

## SESSION 9

- 1:00 p.m. **Sustainability 4.0 – the passport to our future** D. Tegtmeyer
- 1:20 p.m. **“Zirkeltraining” – a Recycling/Upcycling example for Leather** B. Dörra / M. Kreykenbohm
- 1:35 p.m. **Image campaign Leather Naturally!** E. Dikkers

1:45 p.m. – 2:20 p.m.

Hall 1/2

## CLOSING CEREMONY

## POSTER SESSION 1

- P1-01** Effects of graphene oxide on the thermal properties of bovine hide powders (#214) L. Luo
- P1-02** Biocolorant for leather post tanning applications: An eco-benign study (#216) T. Alagumuthu
- P1-03** Preparation and properties of a wood adhesive based on leather wastes modified by blocked waterborne polyurethane (#141) X. Wang
- P1-04** Measurement of leather surface: variability in the measurement using electronic and pin wheel devices on different kind of leathers (#308) R. Mascolo
- P1-05** Primary Treatment of Tannery Wastewater using biopolymer Chitosan (#309) P. R. Burusa
- P1-06** Study on the preparation and characterization of nonionic silicone wetting agent used in waterborne polyurethane (#103) F. F. Zhang
- P1-07** Preparation and Properties of Collagen/Sodium Humate Blend Solution (#112) Z. Tian
- P1-08** Evaluation of ecotoxicity of typical surfactants for leather manufacture by luminescent bacteria (#121) W. M. Han
- P1-09** Novel method for preparing fish collagen gels with excellent physicochemical properties via the dehydration of ethanol (#122) L. Shen
- P1-10** Development of poly(Styrene-b-sodium acrylate) for cleaner wet end application (#123) M. S. Alam
- P1-11** Application of Vegetable Bark Extract as Alternative Retanning Agent for Leather Processing (#12) A. E. Musa
- P1-12** Influence of Photoperiod on Biomass Production and Removal of Nutrients from Tannery Effluents with microalgae Consortium (#19) A. D. C. C. Pena
- P1-13** Modified Polyacrylates as a new Leather Retanning Agents (#20) M. Canudas
- P1-14** Development and Investigation of Low collagen degradability Unhairing Enzyme (#21) S. Cao
- P1-15** Enhancing performance properties of conventional leather finishing topcoat by incorporating metal oxide based formulations (#31) S. Gupta
- P1-16** Polymeric bio-composites: Cleaner leather processing and its role in property enhancement of tanned leather (#34) S. Sharmila
- P1-17** Dissolution of Collagen Fibers from Tannery Wastes in Ionic Liquid and Regenerative Morphology (#41) Y. Pei

**P1-18** Minus salt goat skin preservation: Extreme chloride reduction in tannery wastewater (#43) M. A. Hashem

**P1-19** Characteristics Analysis of High Mechanical Strength Gymnastic Leather and Its Producing Process Optimization (#44) J. Song

**P1-20** Quality of Leather Products as Seen from the Consumer's Standpoint (#46) D. Murai

**P1-21** The Effect of Molecular Size of Plasticizer and Crosslinking Agents on the Properties of Gelatin films (#47) X. Zheng

**P1-22** Sorption comparison of trivalent chromium on various Ficus carica charcoal from tannery wastewater (#54) M. A. Hashem

**P1-23** Sustainable Tannery Effluent Treatment System with TDS Management (#58) S. Rajamani

**P1-24** LIFE COAST Green Organic Agents for Sustainable Tanneries (GOAST) (#62) R. Pasquale

**P1-25** A new system to measure leather shrinkage temperature (#68) J. M. Morera

**P1-26** Optimization of chamois oxidation process of leather using benzoyl per oxide as oxidizing agent (#70) B. Sahu

## POSTER SESSION 2

**SPSC1-01** Constructive application of marine algae for collagen stabilization: Molecular insight on its interaction with leather protein (#232) A. Tamil Selvi

**SPSC1-02** Investigation on the release kinetics of chrome from finished chrome tanned leather (#138) J. W. Long

**P2-01** Biodegradation of chrome shavings using Bacillus Sp. (MG995009), a chrome resistant Bacterium (#217) A. Sindhuja

**P2-02** Preparation of Prussian Blue Nanoparticles / Polyacrylate Composite for Self-healing Leather Finishing Agent (#142) J. Zhang

**P2-03** Study on the Difference of Collagen Fibre Structure Caused by Epoxy Resin Embedding (#143) J. Lu

**SPSC1-03** Preservation of Bovine Hide using Less Salt with Low Concentration of Antiseptic (#265) M. I. Sarker

**SPSC1-05** A Novel Microspheres Composite Hydrogels Cross-linked by Methacrylated Gelatin Nanoparticles: Enhanced Mechanical Property and Biocompatibility (#45) C. Wang

**SPSC1-07** Review of the scientific and technological literature of fungicides in tannery industry: reducing the use and increasing the efficiency of fungicides in the leather industry (#195) Z. Biehl



**PSPC1-08** Analysis of the Functional Components of Acid Protease and Investigation of Bating Mechanism of Wet-blue (#36) H. Li

**P2-04** Study of the application of wb600-kert in unhairing process (#74) Y. Shen

**P2-05** Characteristics of typical pollutants in tannery site soil: a review (#75) X. Teng

**P2-06** Ti (III)-tannin combination tanning technology based on microwave irradiation (#76) J. Wu

**P2-07** A Novel Collagen Extraction Method Based on Microwave Irradiation (#79) Y. Cheng

**P2-08** Influence of mildew on the contents of free fatty acids in leather (#86) L. Jin

**P2-09** Minimization of the environmental impact in the chrome tanning process by a closed-loop recycling technology (#95) L. Jin

**P2-10** Characterization of Volatile Organic Compounds (VOC) in wet-white and metal-free leathers (#97) B. Naviglio

**P2-11** High-efficiency chrome tanning using pre-treatments: synchrotron SAXS and DSC study (#98) Y. Zhang

**P2-12** Crafting Casein-Templated Porous TiO<sub>2</sub> Nanosphere for Bionic Intelligent Leather Surface (#100) Q. Fan

#### POSTER SESSION 3

**P3-01** Collagen modified Base of Unfigured Sea-island Superfine Fiber Synthetic Leather Based on "Click Chemistry": Constructions and Moisture permeability (#189) N. Xu

**P3-02** Developing a Novel Method to Reduce the Impact of Corrosive Attacks on Skin. (#159) W. R. Wise

**P3-03** Effects of soluble soybean polysaccharide as filling agent on the properties of leathers (#224) Z. Tang

**P3-04** Crafting Flame Retardant Casein-based Mg-Al LDH Nanocomposite Leather Finishing Agent (#148) W. An

**P3-05** Resource utilization-Preparation and Application of a sulfited Fat-liquor based on Waste beef tallow from Tannery (#152) L. Ruhui

**P3-06** Observation and Analysis of Leather Structure Based on Nano-CT (#153) H. Zhang

**P3-07** Microencapsulation of clove essential oil with gelatin and alginate (#164) V. V. Kopp

**P3-08** A new material for Turkish Leather Industry: Fish Skin (#165) F. Akyüz

**P3-09** Sustainability disclosure in the leather industry: A content analysis of selected sustainability reports (#166) O. Omoloso

**P3-10** Fabrication of Casein/MOFs Composite Emulsion for Breathable Antibacterial Bi-functional Leather Finishes (#172) Q. Xu

**P3-11** Study on Self-crosslinking of Hydrogen Peroxide Oxidating Collagen (#192) L. Fu

**P3-12** New Wet White/Chrome Free Process offering significant Environmental and Physical Property advantages from Beamhouse to Crust (#194) J. J. Osgood

**P3-13** Hygienic Property and Water Resistance of Waterborne Polyacrylate/Flower-like ZnO Composite Coatings (#197) Y. Bao

**P3-14** Phosphate Modified Polyacrylate Emulsion and its Flame Retardancy (#198) Y. Bao

**P3-15** A Research on the Use of Aluminum Sulphate in Parchment Production and its Effects on Ageing and Color (#202) E. E. E. Bayramoglu

**P3-16** Development and practical application of unhairing method without using sulfide (#205) K. Takase

**P3-17** Collagen stabilization using ionic liquids: A molecular level study (#206) A. Tarannum

**P3-18** A sustainable approach to biodegradation of leather (#210) Y. Khambhaty

#### POSTER SESSION 4

**SPSC2-03** Does post tanning chemicals influence sewability of leathers: An approach towards re-instigating the post tanning process (#249) K. Phebe Aaron

**SPSC2-04** Chemical Safety and Occupational Safety and Health under the banner of REACH, CLP and National Occupational Safety and Health Legislation (#22) T. Martin

**P4-01** Sound absorbing nanofibers from tannery solid waste: Trash to treasure (#255) N. N. Fathima

**SPSC2-05** Monitoring of biogas production from tannery solid wastes at-line in a laboratory-scale anaerobic digester (#163) M. Gutierrez

**SPSC2-06** Use of different pre-treated chromium leather shavings to produce biogas in continuous scale (#244) C. S. Gomes

**SPSC2-07** Keratin derived from tannery cattle hair waste used for the preparation of waterborne polyurethane (#113) J. Liu

**SPSC2-08** Closed loop systems for liming and tanning hides and skins at large and cottage-scale (#57) R. P. Daniels

**P4-02** Towards an understanding of the thermal decomposition behaviors of wet blue leather: the chrome-retanning effect (#213) J. Liu

**P4-03** Effects of different salt-enzymes on opening up of collagen fiber bundles for leather making (#230) Y. Zhang

**P4-04** Collagen Hydrolysate from Limed Pelt Trimmings for the Application of Retanning (#231) M. H. Seid

**P4-05** Leathers for marine applications: Instigating physico-chemical properties of conventional leather (#233) J. Gladstone Christopher

**P4-06** Striding towards self Sustainability using Aluminium from Tanzanian Kaolin for Combination Tanning System (#234) C. R. China

**P4-07** Leather quality as a function of cattle breed (#248) S. Stenzel

**P4-08** Development of a tanning technology with Tanning agents from *Ligustrum vulgare* (#250) M. Schröpfer

**P4-09** Application of silanes in leather tanning (#251) J. Benvenuti

**P4-10** Tuning the self-assembly of Type (I) collagen (#252) R. K. Chanasma

**P4-11** Investigation of the Reaction Mechanism between Bovine Collagen and a Triazine-Based Coupling Reagent (#253) G. Pozza

**P4-12** Sustainable post-tan: A Multifunctional product for compact delivery of post tanning chemicals (#262) R. Sathya

**P4-13** Effective Use of Enzymatic Processes in Beamhouse through Nanoparticle Immobilization (#263) K. J. Sreeram

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## **Imprint**

### **Publisher**

Verein für Gerberei-Chemie und -Technik e. V.  
Meißner Ring 1–5  
D-09599 Freiberg

### **Designer and Editor**

599media GmbH  
Platz der Oktoberopfer 5  
D-09599 Freiberg

### **FILK GmbH**

Meißner Ring 1–5  
D-09599 Freiberg

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