

74th Annual IWCS Cable and Connectivity Industry Forum 2025

Pittsburgh, Pennsylvania, USA
27-30 October 2025

ISBN: 979-8-3313-2965-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2025) by International Wire and Cable Symposium (IWCS)
All rights reserved.

Printed with permission by Curran Associates, Inc. (2025)

For permission requests, please contact International Wire and Cable Symposium (IWCS)
at the address below.

International Wire and Cable Symposium (IWCS)
644 Shrewsbury Commons Ave.
PMB #250
Shrewsbury, PA 17361
USA

Phone: +1 717 993 9500

www.iwcs.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TREND SESSION

Sustainable Solutions for Power and Data Cables

Sponsored By



Bernard Lee
Sr. Dir. of Strategic
Technology & Innovation
SENKO Advanced Components



Jon Mello
Global Market Manager – Wire
& Cable Compounds
Teknor Apex



Maura Nespoli
VP of Sales - Renewable
Energy & Sustainability
Prysmian



Harpreet Singh
NA TS&D Director, Packaging
& Specialty Plastics
Dow



Tim Thiel
Performance Materials
Marketing
Covestro



*Plus perspectives from the
Sustainable Optical Fiber
Industry Alliance*

TECHNICAL PRESENTATIONS

- 1 • Sustainable Options for XLPE Cable Scrap; Brian Risch, Prysmian, USA
- 8 • Next Generation of Recycled Polyolefins for Outer Jacket in OSP Cables; Lucas Nogueira, Prysmian, Brazil
- 14 • Sustainable Solutions for Cable Infrastructure; Tom Schelling, Teknor Apex Company, USA
- 23 • New Sustainable Design for Category 6 Cables; Lucas Nogueira, Prysmian, Brazil

SESSION 1

Session 1: FIBER MANUFACTURING

Chairperson: Kazuyuki Sohma, Sumitomo Electric Industries

29 **Clad Deposition Process Capacity Enhancement with Multiple Burners Through Mathematical Modelling;** Sai Kishore, Chadaram, Sterlite Technologies Limited, India

N/A **High-Speed, Multi-Color Optical Fiber Ring Marking;** Jukka Mönkkönen, Rosendahl Nextrom Oy, Finland

N/A **Improvement of Fiber Ribbon Planarity Based on Optimization of Merging Mold Size and Fiber Preparation Process;** Xinru Yang, Yangtze Optical Fibre and Cable Joint Stock Limited Company (YOFC), China

34 **Kinetic Study on New Generation Optical Fiber Coatings with Improved Processing Robustness;** Huimin Cao, Covestro LLC, USA

41 **cableCORE MES: A Modular Approach to Future-Proofing Cable Manufacturing;** Frederik Becker, InnoVites,

SESSION 2

Session 2: MICRO-CABLE DESIGN & INSTALLATION

Chairperson: Eric Whitham, Lightera

- 51 **Downsizing of High Fiber Count Optical Cable for Air-Blowing;** Okimi Mukai, Fujikura Limited., Japan
- 56 **Detection of Calibration Dart and Blown Cable When Reaching End of Duct;** Willem Griffioen, Plumettaz S.A., Switzerland
- 61 **High Density 864F Micro Cable with 200 Micron Fibre Compatible with Legacy Network;** Manohar Pol, HFCL Limited, India
- 65 **Development of a Composite Fiber Module Fiber Optic Cable for Enhanced Air-Blown Installation;** Darshana Bhatt, Sterlite Technologies Limited, India
- 70 **Blow Length Prediction of Optical Fiber Cables Using Monte-Carlo Simulations Through Cable Bending Stiffness Optimization;** Anshul Agrawal, Sterlite Technologies Limited, India
- 75 **Compact Single Jacket Single Armored Optical Fiber Cable Tubeless Design Featured with Mass Fusion Splicing;** Sourabh Panwar, HFCL Limited, India

SESSION 3

Session 3: DESIGN AND TESTING FOR COPPER ETHERNET AND PoE CABLES

Chairperson: Ed Fenton, Wire & Cable Manufacturers Alliance (WMCA)

- N/A **Transmission of up to 2.5 Gbit/s Data Rate over 100m Single Pair Cabling;** David Pouhè, Reutlingen University, Germany
- 80 **Effect of Temperature Rise on Data Transmission Performance in Power over Ethernet (PoE) Cables;** Bo Xu, Superior Essex Communications, USA
- 87 **Universal Connector for Quick Measurement of Coaxial Cables;** Boris Dardel, AESA SA, Switzerland
- 93 **How Traditional Measurement Techniques in Continuous Casting and Rolling Applications Can Exhibit Perfect Ovality Yet Fail Circularity Criteria;** Chad Walker, Laserlinc, USA

SESSION 4

Session 4: SPECIAL APPLICATIONS & INSTALLATIONS

Chairperson: Wayne Kachmar, Technical Horsepower Consulting LLC

97 Fiber Identification and Tracking; Paul Huang, Panduit Corp., USA

N/A Remotely Controlled Automatic Fiberoptic Underwater Cable Installation; Svend Hopland, Hopland MarinInstal, Norway

100 A Study on GFRP Utility-Poles with both Lightness and Strength; Kento Bunphong, NTT Corporation, Japan

106 Study on the Effect of Tension on Utility Poles During Cable Removal; Yosuke Imokawa, NTT Corporation, Japan

SESSION 5

Sponsored By



Session 5: CODES & STANDARDS

Chairperson: Dmitriy Bodik, UL Solutions

- 111 **What's New? Update on Revisions to UL's Certification Documents;** Anthony Tassone, UL Solutions, USA
- 114 **Shielded Pair Differential Cabling – IEC TC 46 Cable Standards;** Dave Hess, Cord Data, USA
- 122 **Non-Fluorine and Non-PFAS Wire & Cable Compounds;** Anthony Tassone, UL Solutions, USA

SESSION 6

Session 6: FIBER CABLE DESIGN, QUALIFICATION, MANUFACTURING AND RELIABILITY

Chairperson: Bulent Kose, Panduit Corp.

- 124 **Study of Comparative Mechanical Performance of Bend Insensitive vs Non-bend Insensitive Fibers Incorporated into Cables Designed for Bend Insensitive Fiber;** Wayne Kachmar, Technical Horsepower Consulting LLC, USA
- 131 **Evaluation and Refinement of FEA Techniques for Thermal Cycling in Fiber Cables;** Devin Whalen, Proterial Cable America, USA
- 137 **Advanced Flame-Retardant GFRP Rods: Enhancing Safety and Performance in Optical Fiber Cables;** Devkumar Lalla, Runaya Private Limited, India
- 146 **Optical Fiber Cable Shrinkage - Causes, Impact & Control Mechanism;** Darshana Bhatt, Sterlite Technologies Limited, India
- 152 **High Density Ultra-Light Wight Optical Fiber Cable with Easy Fiber Access;** Jyoti Das, HFCL Limited, India
- 158 **Use of Advanced Composite Rods to Strengthen Fiber Optical Cables;** Ronak Sanghvi, Indore, India

SESSION 7

Session 7: ADVANCES IN OPTICAL FIBER COATINGS & CABLE MATERIALS

Chairperson: Thomas Schelling, Teknor Apex Company

- 165 **Research on B2CA Grade Flame Retardant Optical Cable;** Hao Du, Jiangsu Hengtong Optoelectronics Co, China
- 168 **Halogen-Free Solutions for Specialty Cable Design Utilizing Different Thermosetting Chemistry;** Sasha Ghanbar, Gendon Polymer Services Inc., Canada
- 174 **Bio-based UV-Curable Optical Fiber Coatings: Bridging Performance and Sustainability;** Wanyu Liao, Covestro LLC, Japan
- 178 **Fast Curing Next Generation Primary Coating Designed Around Impending Regulatory Legislation;** Grant Sheridan, Covestro LLC, USA
- 184 **Advanced Liquid Crystal Polymer (LCP) Based Composite Rod: A High-Performance Alternative for Optical Fiber Cable Reinforcements;** Sambodhi Pramanik, Runaya Private Limited, India
- 191 **AI-Driven Process Control for High-Speed Optical Cable Secondary Coating Lines;** Jussi Hanhirova, Maillefer Extrusion Oy, Finland

SESSION 8

Session 8: HYPERSCALE AND AI INNOVATIONS FOR DATA CENTERS

Chairperson: Ben Waite, Fiber Optic Center

- 200 **A Mass Insertion Solution with Reduced Installation Force for Very Small Form Factor Connectors;** Pradeep Bembiri, US Conec, Ltd., USA
- 207 **Advancing Sustainable Connectivity: Reducing GWP with Recycled PBT in VSFF Optical Connectors;** Takeshi Kasai, Senko Advanced Components, USA
- 214 **Fiber Connection-Induced Latency in AI-Powered Applications;** Michael Dodds, Leviton Manufacturing Co., Inc., USA
- 221 **288F 200u Flexible Ribbon Plenum Cable for Data Center Applications;** Brian Risch, Prysmian, USA
- 227 **Development of High-density Cable for Aerial Section with Cut-off Shifted Single-Mode Optical Fiber;** Akihiro Yanagida, NTT Corporation, Japan
- N/A **16-Base Rollable Ribbon Plenum-Rated Cables for Hyperscale Datacenter Installations;** Julie Burnett, Prysmian, USA
- 232 **Ultra-High-Fiber-Count Indoor/Outdoor Cable Suitable for Data Center Wiring;** Fumiaki Sato, Sumitomo Electric Industries,Ltd., Japan

SESSION 9

Session 9: MATERIALS RESILIENCE & DURABILITY

Chairperson: Brian Risch, Prysmian

- 238 **Laser Printable Jacketing Materials for Wire and Cable Applications;** Yixuan Song, Dow Inc., USA
- 242 **Innovative Solution for Rodent-Resistant Telecommunication Networks;** Mareo Tooley, Corning Optical Communications, USA
- 246 **Fluorinated and Engineering Thermoplastics with Carbon Nano Structures for Wire and Cable Claddings;** Michael Sanchez, AGC Chemicals Americas, USA
- 251 **Polyetherimide (PEI)-Siloxane Copolymers as an Alternative to Fluoropolymers;** Sean Culligan, SABIC, USA
- 255 **Effect of Copper-Catalyzed Thermal Oxidation of Polypropylene and Polyethylene on Crystallization Kinetics;** Reza Barzegari, CommScope, USA
- 261 **Hydrolysis Resistance of Optical Cable Polyester Components' (Viscosity Study);** Krzysztof Piechocki, Corning Optical Communications, Poland
- 268 **Optimizing Plasticizer Selection: Insights into Thermoplastic Polyurethane Performance and Sustainability;** Ginevra Vongher, IPOOL Srl, Italy

SESSION 10

Session 10: MULTICORE OPTICAL FIBER

Chairperson: Michael J. Gimblet, Corning Optical Communications

- 281 **Advances in Few-Mode Fiber Manufacturing and Characterization;** Frank Achten, Prysmian Draka, Netherlands
- 285 **Core Identification and Geometry Specifications in Multicore Optical Fibers;** Roman Shubochkin, Lightera, USA
- 294 **Preparing for Mass Production of Multicore Fiber Assemblies;** Daniel Smith, Nest Technical Services, Inc., USA
- 301 **Multicore Fiber Microduct Cable with Multiple Strands of High-Density Loose Tubes;** Tetsuya Hayashi, Sumitomo Electric Industries, Ltd., Japan
- N/A **Deployment of Multicore Fiber in Physically Constrained Terrestrial Networks;** Dan Neugroschl, Chiral Photonics, USA
- 307 **Cross-Talk Optimized Seven Core Multi Core Fibre;** Sandeep Gaikwad, Sterlite Technologies Limited, India

POSTER PAPERS

Chairperson: Alistair Duffy, Faculty of Computing, De Montfort University, UK

311 • **Scale-Corrected 3D Point Cloud Generation for Aerial Cable Height Estimation Using Vehicle-Mounted Stereo Cameras;** Tomokazu Oda, NTT East Corporation

316 • **Non-Intrusive Detection of Gas Leaks in Metallic Cable Closures Using Acoustic Analysis;** Taichi Murakami, NTT East Corporation

321 • **Fire Resistance Coaxial Cable Development for IEC Standard;** Jongseb Baeck, LS Cable & System, Republic of Korea

325 • **Evaluating Water Seepage Distance in Submarine Cables with Water-Absorbent Polymers Based on Air and Water Permeability;** Kentaro Matsui, Nippon Shokubai Co., Ltd., Japan

329 • **AI in industry 4.0 - Quality Inspection in the Wire and Cable Industry;** Slava Kusova, Taymer International, Canada

N/A • **An AI Agent-Based Smart Platform for Compound Design in the Cable Industry;** Yung-Chen Lin, Walsin Lihwa Corp., Taiwan

N/A • **Importance of GFRP Rod's Modulus in OFC Cable;** Roshan Varade, Runaya Private Limited, India

332 • **Long-term Performance Evaluation of Insulation Materials: Application of the Damage Equalization Model for Reliability Prediction;** Sue Jin Son, LS Cable & System, Republic of Korea

N/A • **Research on the Application of Compression-Traction Device in the Control of the Residual Length Stability of the Loose Tube in Optical Cables;** Junhong Liu, Yangtze Optical Fibre and Cable Joint Stock Limited Company (YOFC), China

337 • **Study on the Processing Performance of Flame Retardant Optical Fiber Cables;** Huang Xin, Yangtze Optical Fibre and Cable Joint Stock Limited Company, China

342 • **The Lifetime Evaluation of a 23-Year-old OPGW;** Li Ming, Zhongtian Power Optical Cable Co., Ltd, China

N/A • **Cable Durability and Recycling: Challenges and Solutions for a Greener Future;** Herlins Coeurly Jean-Pierre, State University Of Campinas (UNICAMP), Brazil

350 • **Big Data-Driven Intelligent Manufacturing of Optical Fiber Preforms;** Zhijian Liu, Fiberhome Telecommunication Technologies Co.,LTD., China

355 • **FEA Simulations of Optical Cable Connector Box Drop Impact Test at Sub-Zero Temperatures;** Anshul Agrawal, Sterlite Technologies Limited, India

359 • **Effect of Cable Winding Tension on Tangling of Cable During Unwinding From Drum;** Akash Bhowar, Sterlite Technologies Limited, India

362 • **Application Research of Universal Preconnected Solution;** Min Wu, Hengtong Optic-Electric Co., Ltd, China

N/A • **Additive Manufacturing for Corrosion Resistant Extrusion Barrels;** Cheryl Sayer, Xaloy, USA