The 49th Research Conference on Communications, Information and Internet Policy
September 22-24, 2021

Held Virtually
All times shown are Eastern Time

Hosted by American University Washington College of Law
Washington, DC

Wednesday, September 22, 2021

10:15 am  Welcome to a Virtual Conference, Nicol Turner Lee, TPRC Chair
10:30 am  Paper Sessions outlined in grid
11:30 am  Coffee Break and Networking
12:00 pm  Paper Sessions outlined in grid
1:00 pm  Coffee Break and Networking
1:30 pm  Plenary Session, Doreen Bogdan-Martin, ITU
2:30 pm  Panel Discussion: Radio Frequency Spectrum Efficiency – New Developments and Trends, Moderator: Dale Hatfield
Poster Session
3:30 pm  Town Hall Discussion
4:30 pm  Closing followed by networking

Thursday, September 23, 2021

10:15 am  Welcome to a Virtual Conference, Nicol Turner Lee, TPRC Chair
10:30 am  Paper Sessions outlined in grid
11:30 am  Coffee Break and Networking
12:00 pm  Paper Sessions outlined in grid
1:00 pm  Coffee Break and Networking
1:30 pm  Plenary Session: Student Paper Award Presentations with introductory comments
  • Detecting effects of misinformation through emotion and trace behavior, Kristen Sussman, University of Texas at Austin
  • Title “Zero”: Ending the infinite loop of classifications for broadband via a technology agnostic definition, Matthew Chung, University of California Berkeley School of Law, Harrison Geron, University of California Berkeley School of Law, David Fang, University of California Berkeley School of Law and Walter Mostowy, University of California Berkeley School of Law
  • Wanted: Spectrum Bounty Hunters, Wilson Scarbeary, University of Colorado Law School
2:30 pm  Panel Discussion: Here Comes the Quantum ARPANET, Moderator: Jane Bambauer, University of Arizona
Poster Session
3:30 pm  Panel Discussion: Internet Governance
4:30 pm  Closing followed by networking
Friday, September 24, 2021

10:15 am  Welcome to a Virtual Conference, Nicol Turner Lee, TPRC Chair  
10:30 am  Paper Sessions outlined in grid  
11:30 am  Coffee Break and Networking  
12:00 pm  Paper Sessions outlined in grid  
1:00 pm  Coffee Break and Networking  
1:30 pm  Plenary Keynote  
2:30 pm  Panel Discussion: Content Moderation  
          Poster Session  
3:30 pm  Closing Plenary Speaker  
4:30 pm  Closing followed by networking

For complete details and descriptions, please see our website, www.tprcweb.com.

Conference Information
The 49th Annual Telecommunications Policy Research Conference will be held virtually this year due to travel restrictions caused by the global pandemic. Each registrant will be sent a link to our scheduling tool, SCHED, which will allow you access to each of the sessions. Sessions will be recorded and archived for future viewing. While we look forward to exchanging ideas online, we hope to see you in person in September 2022 to celebrate our 50th anniversary! Please contact Laura Verinder, laura.verinder@gmail.com with any questions.

Conference Registration
Online registration is available at https://www.tprcweb.com/.

Conference Fees

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<th>Before Aug. 31</th>
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<tbody>
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<td>Student</td>
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Registration fees cover all conference sessions and access to recorded sessions.

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www.tprcweb.com
TPRC2021 Program Committee

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Aylin Caliskan, George Washington University

Edward Carlson, NTIA

Silvia Elaluf-Calderwood, Florida International University

Mohamed El-Moghazi, National Telecom Regulatory Authority of Egypt

Alex Engler, Brookings Institute

Hernan Galperin, University of Southern California

Marcela Gomez, University of Pittsburgh

Keyla Hernandez-Ulloa, FCC

Gus Hurwitz, University of Nebraska College of Law

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Christos Makridis, Arizona State University

James Miller, Amazon Web Services Japan

Fay Cobb Payton, North Carolina State University

Petrus Potgieter, University of South Africa

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University of Arizona – James E. Rogers College of Law TechLaw Program
North Carolina Central University – School of Library and Information Sciences

For additional information on sponsorship opportunities, contact Syd Verinder at syd.verinder@gmail.com.
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<th>Paper Sessions Wednesday, September 22</th>
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<tr>
<td><strong>1. Broadband-Mobile</strong></td>
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<td>Next-G Wireless: Learning from 5G Techno-economics to Inform Next Generation Wireless Technologies</td>
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<td><strong>2. Law &amp; Economics-EU Regulation</strong></td>
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<td>Platform governance: Emerging models for co-regulation of video-sharing platforms in Europe</td>
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<td><strong>3. Tech-Equity</strong></td>
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<td>Digital Inclusion Alchemy by Internet Backpack. ICT Policy Implications of Edge Computing &amp; Cyber-Physical Infrastructure for Education</td>
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<td><strong>4. Privacy-Empirical Assessments</strong></td>
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<td>Market Power &amp; Privacy: An Empirical Examination</td>
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<td><strong>5. Security-Data Breach</strong></td>
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<td>What Works? Measuring the Efficacy of Cyber Policy Interventions with Quasi-Experiments</td>
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**10:30 am ET**

**Mobile Internet use patterns and wellbeing in Bangladesh and Ghana**
Leon Gwaka, University of Pennsylvania, Muge Haseki, University of Pennsylvania, Himani Mehta, University of Pennsylvania and Christopher Yoo, University of Pennsylvania

**The Effect of Hatespeech Regulation in German Twitter**
Raphaella Andres, ZEW - Leibniz Centre for European Economic Research and Olga Slivko, Rotterdam School of Management of Erasmus University

**Sharing Unfairly: The Role of Comments on Racial Discrimination on Airbnb**
Floor Fiers, Northwestern University and Nathan Walter, Northwestern University

**Value of Personal Health/Medical Data and Potential of the Personal Health/Medical Data Market**
Atsushi Ozu, Ministry of Internal Affairs and Communications | Japan Center for Economic Research and Teppei Koguchi, Shizuoka University

**Cardinality bundling under oligopoly – a simulation model**
Petrus H. Potgieter, University of South Africa and Bronwyn Howell, Victoria University of Wellington

**EU competence creep in the field of national security: Implications for mass surveillance of online communication**
Sarah Eskens, Vrije Universiteit Amsterdam

**Creating a Digital Bridge: Lessons and policy implications from a technology access and distribution program for unemployed workers**
Stacey Wedlake, University of Washington, Kathleen Carson, Seattle Jobs Initiative and Yvette Iribe Ramirez, University of Washington

**Uncrunched: Algorithms, Decisionmaking, and Privacy**
Derek Bambauer, University of Arizona and Michael Risch, Villanova University

**Do Data Breaches Damage Reputation? Evidence from 45 Companies Between 2002 and 2018**
Christos Makridis, Arizona State University

**Enterprise Risk Management: Understanding the Role of Cyber Risk**
Sasha Romanovsky, RAND Corporation and Elizabeth Petrun-Sayers, RAND Corporation
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<td>Udayan Das, Loyola University Chicago and Keith Gabbard, People Rural Telephone Cooperative (PRTC)</td>
<td>Milton Mueller, Georgia Tech</td>
<td>Peter Wang, University of Florida and Mark Jamison, University of Florida</td>
<td>Martha Onyeajuwa, Pan-Atlantic University, Nigeria</td>
<td>Yik Chan Chin, Beijing National University and Ke Li, Beijing National University</td>
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<td>Heather Hudson, University of Alaska Anchorage, Rob McMahon, University of Alberta and Bill Murdoch, Clear Sky Connection</td>
<td>Blue Miaoran Dong, Carleton University</td>
<td>Javier Gonzalo Rodriguez Ruiz, Universidad de Guadalajara</td>
<td>Jane Bambauer, University of Arizona</td>
<td>Carolyn Gideon, Tufts University</td>
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<td>Luisa Nazareno, Georgia State University and Justina Jose, Georgia State University</td>
<td>Richard Taylor, Penn State University</td>
<td>Avijit Sarkar, University of the Redlands, James Pick, University of the Redlands and Tridev Raut, University of the Redlands</td>
<td>Dmitry Epstein, The Hebrew University of Jerusalem and Rotem Medzini, The Hebrew University of Jerusalem</td>
<td>Steven Weber, University of California Berkeley</td>
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<td>10:30 am</td>
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<td><strong>11. Broadband-State/Local Policy</strong></td>
<td>Universal Digital Ad Transparency Laura Edelson, New York University, Jason Chuang, Mozilla and Erika Franklin Fowler, Wesleyan University</td>
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<td><strong>12. Law &amp; Economics-Platform Regulation</strong></td>
<td>The Risks and Rewards in Weaponizing Spectrum Planning at the International Telecommunication Union Rob Frieden, Penn State University</td>
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<td><strong>13. Law &amp; Economics-Network Contracts</strong></td>
<td>Social Media as Contractual Networks: A Bottom Up Check on Content Moderation Maayan Perel, University of Haifa and Giovanni De Gregorio, University of Milano-Bicocca</td>
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<td><strong>15. Spectrum</strong></td>
<td>IMT-2020 Standardization: Lessons from 5G and Future Perspectives for 6G Mohamed El-Moghazi, NTRA and Jason Whalley, Northumbria University</td>
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<td>A program evaluation of state broadband grant programs</td>
<td>A model of incentives and optimal time of investment for New Zealand's price-quality path regulated fibre-to-the-home, open-access platforms Fernando Beltran, University of Auckland</td>
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<td>Too Hot To Handle?: Eliezer Silberberg, University of Minnesota Law School</td>
<td>The relationship between trust and the spread of misinformation &amp; disinformation in networks Bryan Boots, Colorado State University</td>
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<td>Kenneth Flamm, University of Texas at Austin and Pablo Varas, University of Texas at Austin</td>
<td>Rethinking Product Liability Rules for Online Marketplaces: A Comparative Perspective Christoph Busch, University of Osnabrueck</td>
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<td>Smart Contracts, Real-Virtual World Convergence and Policy Implications William Lehr, Massachusetts Institute of Technology</td>
<td>The Domestic Motives of Foreign Influence Operations Patrick Warren, Clemson University and Darren Linvill, Clemson University</td>
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<td>Techno-Economic Analysis of The Shared Virtualized Resources in 5G Small Cells Operating in Millimeter-Wave Spectrum Bands Waleed Almarshedi, University of Colorado Boulder, Martin Weiss, University of Pittsburgh and Kevin Gifford, University of Colorado Boulder</td>
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<td>12:00</td>
<td><strong>16. Broadband-Measurement</strong>&lt;br&gt;Measuring Library Broadband Networks to Address Knowledge Gaps and Data Caps&lt;br&gt;Colin Rhinesmith, Simmons University and Chris Ritzo, Measurement Lab</td>
<td>Moderator: Hernan Galperin, University of Southern California</td>
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<td><strong>18. Law &amp; Economics-Interconnection</strong>&lt;br&gt;The Importance of National Data Infrastructure in Low- and Middle-income Countries&lt;br&gt;Sharada Srinivasan, University of Pennsylvania and The World Bank Group, Niccolò Comini, The World Bank Group and Michael Minges, ICT Data</td>
<td>Moderator: Jane Coffin, Internet Society</td>
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<td><strong>19. Global Network Policy</strong>&lt;br&gt;Challenges in measuring the Internet for the public interest&lt;br&gt;kc Claffy, University of California San Diego and David Clark, Massachusetts Institute of Technology</td>
<td>Moderator: Mohamed El-Moghazi, National Telecom Regulatory Authority of Egypt</td>
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<td><strong>Dissecting an Internet speed test: a month in the life of the Network Diagnostic Tool</strong>&lt;br&gt;David Clark, Massachusetts Institute of Technology and Sara Wedeman, Massachusetts Institute of Technology</td>
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<td><strong>A comparative lens to prominence regulation and its implications for freedom of expression and media pluralism</strong>&lt;br&gt;Eleonora Maria Mazzoli, London School of Economics and Political Science</td>
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<td><strong>Peer Pressure? Exploring the drivers of Internet peering between competing national carriers</strong>&lt;br&gt;Lourdes Montenegro, National University of Singapore</td>
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<td><strong>A Framework for Expressing Registration Data Directory Services (née Whois) Rules</strong>&lt;br&gt;Steve Crocker, Edgemoor Research Institute</td>
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<td><strong>Into the Next Generation of Online Video: OTT Video 3.0</strong>&lt;br&gt;Eli Noam, Columbia University</td>
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<td><strong>Internet Interconnection, Ecosystem Fragmentation — Towards a Conceptual Foundation of Generalized Virtual Networks</strong>&lt;br&gt;Volker Stocker, Weizenbaum TU Berlin, Günter Knieps, University of Freiburg and Christoph Dietzel, Max-Planck-Institute for Informatics and DE-CIX</td>
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<td><strong>The Diffusion of National Domain Name Dispute Resolution Policies: A Network Approach.</strong>&lt;br&gt;Ryan Wang, Penn State University, Yang Bai, Penn State University, Jenna Grzeslo, Penn State University and Krishna Jayakar, Penn State University</td>
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<td><strong>Spectrum Rights in an Adaptive &amp; Reconfigurable Wireless World.</strong>&lt;br&gt;Rohit Singh, Carnegie Mellon University and Doug Sicker, University of Colorado Denver</td>
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<td>21. COVID</td>
<td>Broadband availability and secondary student engagement during COVID-19 in Ireland</td>
<td>Gretta Mohan, Economic and Social Research Institute, Ciaran Mac Domhnaill, University of St. Andrews, Scotland and Selina Mc Coy, Economic and Social Research Institute</td>
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<td>22. Law &amp; Economics-Big Questions</td>
<td>Is Speed Enough? Examining the Definition of Broadband and Its Implications for Public Policy</td>
<td>David Reed, University of Colorado Boulder</td>
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<td>23. Security-Infrastructure</td>
<td>Toward Grading Cybersecurity &amp; Resilience Posture for Cyber Physical Systems</td>
<td>Rohit Singh, University of Colorado Boulder, Shaun T. Hutton, Baylor University, Michael J. Donahoo, Baylor University and Doug Sicker, University of Colorado Denver</td>
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<td>24. Law &amp; Economics-Platform Competition</td>
<td>Effects of Big Tech Acquisitions on Innovation</td>
<td>Tiago Sousa Prado, Michigan State University</td>
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10:30am

- **Broadband availability and secondary student engagement during COVID-19 in Ireland**
  - Gretta Mohan, Economic and Social Research Institute, Ciaran Mac Domhnaill, University of St. Andrews, Scotland and Selina Mc Coy, Economic and Social Research Institute

- **Is Speed Enough? Examining the Definition of Broadband and Its Implications for Public Policy**
  - David Reed, University of Colorado Boulder

- **Toward Grading Cybersecurity & Resilience Posture for Cyber Physical Systems**
  - Rohit Singh, University of Colorado Boulder, Shaun T. Hutton, Baylor University, Michael J. Donahoo, Baylor University and Doug Sicker, University of Colorado Denver

- **Effects of Big Tech Acquisitions on Innovation**
  - Tiago Sousa Prado, Michigan State University

- **Characterizing User Comprehension in the STIR/SHAKEN Anti-Robocall Standard**
  - Imani Sherman, University of Florida, Daniel Delgado, University of Florida, Juan Gilbert, University of Florida, Jaime Ruiz, University of Florida and Patrick Traynor, University of Florida

- Patience Akpan-Obong, Arizona State University

**The Impact of Global Telecommunications Standard Setting on U.S. Strategy and Policy**
- Alexandra Bruer, ITIF and Doug Brake, ITIF

**Identifying Critical Infrastructure in a World with Supply Chain and Network Cybersecurity Risk**
- Christos Makridis, Arizona State University and Deven Desai, Georgia Tech

**Big Tech, Big Data, and Competition Policy: Favoring Dynamic Over Static Competition**
- David Teece, University of California Berkeley and Nicolas Petit, European University Institute

**A comparative study of local broadcasters’ Twitter utilization in different market conditions**
- Sangyong Han, University of Pennsylvania Law School

**Information Society: Policies and Law in Mongolia**
- Undrah Baasanjav, Southern Illinois University Edwardsville

**The Networked Politics of Incident Response: Practices and Pressure Points**
- Louise Marie Hurel, London School of Economics and Political Science and Laurin Weissinger, Tufts University

**Anticompetitive Effects in Platform (and Non-Platform) Markets**
- Thomas Nachbar, University of Virginia School of Law

**The Clickwrap as Platform Governance: Assessing the Frequency of Exploitative Interface Designs During Digital Service Sign-Up**
- Jonathan Obar, York University and Lior Magalashvili, Ryerson University
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<td>12:00pm</td>
<td>Broadband access, contactless community, and local information services: PEG access channels in the pandemic</td>
<td>Covenants Without the Sword</td>
<td>Using artificial intelligence to improve traffic flows, with consideration of data privacy principles</td>
<td>Aligning Legal Definitions of Personal Information with the Computer Science of Identifiability</td>
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<td>Patricia Aufderheide, American University, Antoine Haywood, University of Pennsylvania and Mariana Sanchez Santos, American University</td>
<td>Vaibhav Garg, Comcast Cable</td>
<td>Shifting the Oversight Lens to Reform the U.S. Government’s Vulnerabilities Equities Process Amy Gaudion, Penn State Dickinson Law</td>
<td>Scott Jordan, University of California, Irvine</td>
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<td>Democratic accountability in computational infrastructure: the case of contact tracing technology</td>
<td>Disambiguating Cyber</td>
<td>In Banks we Trust: Banks as Custodians of Personal Data in Open Banking Ecosystems</td>
<td>Smart Cities and Ethical Policies: The Challenges of Public Cameras and AI</td>
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<td>Valerie Steinkogler, EMJMD DCLead</td>
<td>David Thaw, University of Pittsburgh</td>
<td>Ine van Zeeland, imec-SMIT, Vrije Universiteit Brussel and Jo Pierson, imec-SMIT, Vrije Universiteit Brussel</td>
<td>Tiancheng Cao, University of Texas at Austin</td>
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<td>Compulsory Trade Secret Licenses</td>
<td>Reframing Perspectives on Cybersecurity in Working from Home</td>
<td>Quantum Computing and the Scarcity of Predictive Capacities</td>
<td>Unsafe at any AUC: Uncovering sociotechnical control for responsible AI</td>
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<td>David Levine, Elon Law</td>
<td>Mary Bispham, Kings College London, Sadie Creese, Oxford University, William Dutton, GCSCC, Patricia Esteve-Gonzalez, GCSCC and Goldsmith Michael, Oxford University</td>
<td>Nikolas Guggenberger, Yale Information Society Project</td>
<td>Abigail Jacobs, University of Michigan, Andrew Smart, Google, Elana Zeide, University of Nebraska College of Law, and Joshua Kroll, Naval Postgraduate School</td>
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<td>Paul Brewer, University of Delaware, James Bingaman, University of Delaware, Wyatt Dawson, University of Delaware, Ashley Paintsil, University of Delaware and David Wilson, University of Delaware</td>
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**Poster Sessions**

**Wednesday, February 22, 2:30 pm ET**

- **THE CASE OF 6G AND BEYOND**  
  Patrick Fiati, *Bluecrest University, Ghana*

- **Duty of care competition and moderation**  
  Jonathan Cave, *University of Warwick and UK Regulatory Policy Committee*

- **Home is Where the High Speed Is: Household Determinants of Broadband Internet Subscription**  
  Michael Martin, *United States Census Bureau*

- **The Effect of Paid Peering Fees on Broadband Prices and Consumer Surplus**  
  Ali Nikkhah, *University of California, Irvine* and Scott Jordan, *University of California, Irvine*

- **A Study of Promoting Sustainable Mobile Broadband Adoption - Focusing on Developing Countries for Achieving SDGs**  
  Sobee Shinohara, *KDDI Research*

- **Simulating and Estimating Structural Spectrum Auction Parameters: An Application to the C-Band Auction**  
  Yong Paek, *The Brattle Group* and Ezra Frankel, *The Brattle Group*

**Thursday, September 23, 2:30 pm ET**

- **Deficiencies in the Disclosures of Privacy Policies and in User Choice**  
  Scott Jordan, *University of California, Irvine*, Siddharth Narasimhan, *University of California, Irvine* and Jina Hong, *University of California, Irvine*

- **Intended and unintended impacts of machine learning for education**  
  Rediet Abebe, *University of California, Berkeley*, Tolani Britton, *University of California, Berkeley*, Lydia T. Liu, *University of California, Berkeley* and Serena Wang, *University of California, Berkeley*

- **Impact of Interference from Millimeter-Wave Cellular Deployments on Weather Satellites**  

- **Ethical Artificial Intelligence in the context of the European Union: gamification of policy-making and simulating decision processes**  
  Davor Ljubenkov, *imec-SMIT-VUB*

- **Democratic accountability in computational infrastructure: the case of contact tracing technology**  
  Valerie Steinkogler, *EMJMD DCLead*

- **Simplifying License Information through the use of a Knowledge Graph**  
Friday, September 24, 2:30 pm

- **Productivity of the use of Information and Communication Technologies in middle and higher education: The case of Mexican states.**
  Diana L. Becerra-Peña, *University of Guadalajara*, Javier Gonzalo Rodríguez Ruiz, *University of Guadalajara* and Patricia Gutiérrez Moreno, *University of Guadalajara*

- **Taking the Plunge: Factors That Influence Rural Households When Choosing a Broadband Service**

- **Connecting Across the Digital Divides through Story Maps: Agriculture, Education, Domestic & International**

- **Communicating Impact: the Global Cybersecurity Capacity Centre**
  Carolin Weisserr Harris, *Global Cyber Security Capacity Centre (GCSCC)*, Elizabeth Orembo, *Global Cyber Security Capacity Centre (GCSCC)* and William H. Dutton, *Global Cyber Security Capacity Centre (GCSCC)*

- **Constructive Outcomes of Internet Adoption in Older Adult Households**
  Michel Mersereau, *University of Toronto*

- **Impacts of Broadband Availability in Arkansas Public Schools During the Covid-19 Pandemic on Virtual Learning Decisions**
  Jacob Manlove, *Arkansas State University* and Alexis Schrubbe, *University of Texas at Austin*

- **The Internet at 50: The Best of Times, the Worst of Times?**
  Prabir Neogi, *Carleton University*, Arthur Cordell, *Carleton University* and Don Maclean