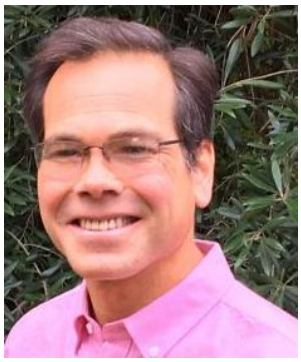
Mathematical Sociologist

Message from the Chair: Noah Mark



Hello, mathematical sociologists! I hope everyone is having a good summer, feeling successful in your strategies to beat the heat, having good productive days, and hopefully some relaxing and/or invigorating vacations.

The ASA Meeting in Montreal is just around the corner, and it's set to be a great time for mathematical sociology. (continues on page 2)

Section Officers

Inside this issue:

Incoming Section Officers

Chair-Elect
(3-year term [Chair-Elect/Chair/Past Chair]: 07/14/24 – 08/31/27)
Omar Lizardo, University of California, Los Angeles

Council Members
(3-year term: 07/14/24 – 08/31/27)
Yongren Shi, University of Iowa
Natasha Quadlin, University of California, Los Angeles

Graduate Student Representative
(1-year term: 07/14/24 - 08/31/25)
Aidan Combs, Duke University

Secretary/Treasurer
(3-year term: 07/14/24 – 08/31/27)
Kimberly B. Rogers, Dartmouth College

A lot of innovative math soc research is on the schedule, and there will be many opportunities for connecting with your math soc colleagues as well as your colleagues in related fields, especially those with whom we are jointly sponsoring sessions. The full Math Soc schedule is summarized elsewhere in this issue. Still, here I will call your attention to the fact that there are six great paper sessions on the schedule, and they are spread across a three-day window centered on Sunday, 8/11, which is our official Math Soc Section Day and the day our business meeting and 3 of our paper sessions will be held. Another high point will be our section reception, which we are sponsoring jointly with Social Psychology and Sociology of Emotions. The reception will be on Saturday evening, 6:30-8:30 pm, and will be held offsite at Le Jardin, located at the nearby Delta Hotels by Marriott Montreal (475 President Kennedy Avenue).

ASA and ASA section elections were held in April and May, and the Math Soc Section has voted in a great new set of section leaders. We also approved each of our two proposed bylaw amendments. Omar Lizardo will be our new Chair-Elect. His term as Chair-Elect will begin on August 14, and he will serve as our Section Chair for the 2025-26 year. Kim Rogers will be our new Secretary/Treasurer; her 3-year term will begin on August 14. Natasha Quadlin and Yongren Shi will be our new members of the Math Soc Section Council (3-year terms), and Aidan Combs will be our new Student Representative member of the Council (1-year term). We are grateful to all those who agreed to run and to our Nominations Committee (chaired by Dawn Robinson) for identifying and recruiting such a strong slate of candidates. (A complete listing of the members of the nominations committee and our other committees appears elsewhere in this issue.)

Congratulations to this year's section award winners! Kathleen Carley will receive the James S. Coleman Distinguished Career Award; Kathleen will deliver the Math Soc Section's Coleman Lecture at the 2025 Meeting of the ASA. Ron Breiger will receive the Award for Progress in Mathematical Sociology for his development of the concept of DUALITY. Jennie E. Brand, Jiahui Xu, Bernard Koch, and Pablo Geraldo are the Outstanding Article Publication Award winners for their article "Uncovering Sociological Effect Heterogeneity Using Tree-Based Machine Learning" (2021 *Sociological Methodology*). James Chu has received an honorable mention for his article "Clarity from Violence? Intragroup Aggression and the Structure of Status Hierarchies" (2023 *American Sociological Review*). Ben Rosche is the winner of our Outstanding Graduate Student Paper Award for his paper "Socioeconomic Segregation in Adolescent Friendship Networks: A Network Analysis of Social Closure in US High Schools," and Peng Huang has received an honorable mention for his article "Parameter Estimation

Procedures for Exponential-Family Random Graph Models on Count-Valued Networks: A Comparative Simulation Study" (with Carter Butts, 2024 *Social Networks*). William Holtkamp received the Geoffrey Tootell Outstanding Dissertation in Progress Award for his dissertation titled "Belief Systems, Network Locations, and Belief Change: The Effects and Determinants of Core and Periphery Belief Network Positions." Congratulations to all of our winners for these richly deserved honors. Please see the article describing our award winners and their outstanding work in this issue!

Our award selection committees did a lot of work this year. This year, again, the fields in these selection processes were highly competitive. As we appreciate the excellent state of affairs that this outcome reflects, we must remember the large workload that this outcome implies for our award selection committees. Our deep thanks to the individuals who served on these committees for performing this vital service.

The Section has a new website! The website is currently located at mathematicalsociology.wordpress.com, but stay tuned because we are in the process of moving it to our original website address—mathematicalsociology.org. The new website has several great features, but I especially want to call your attention to the new page featuring profiles of our student members. This provides a new way for student members of the Section to make themselves and their work known to other Math Soc Section members and colleagues in the larger community of scholars. This will also serve as a resource for the discipline as folks look for mathematical sociologists to hire or collaborate with. We encourage student members who have not submitted information for the creation of their profiles to do so here. The website also has a (nearly) complete archive of all past issues of our section newsletter, *The Mathematical Sociologist*. My profound thanks to our new webmaster team, Nick Harder, Allison Leanage, and Zara Jillani, for their excellent work in developing the new website. Many thanks also to outgoing webmaster Zack Almquist for his years of service to the Section in this role.

I also want to thank our newsletter editors, Jorge Zazueta and Diego Leal, for their hard work in creating another great issue of our newsletter. There is a lot of helpful information in the following pages, and putting it together in a reader-friendly way takes a lot of work. Thank you, Jorge and Diego.

Before closing, I want to remind you once more to see the summary of the mathematical sociology schedule at ASA in this issue. We have many great events coming, and I'm looking forward to seeing you there!

Best summer wishes to all of you!

Noah

Mathematical Sociology Program at 2024 ASA Meeting

Mathematical and Computational Methods in Social Psychology
(Jointly sponsored with Social Psychology)

Sat, August 10, 8:00 to 9:30am, Palais des Congrès de Montréal, Floor: Level 5, 510D

Session Organizer: David Melamed, Ohio State University.
Presider: Bradley Montgomery, Ohio State University

We seek papers for a session sponsored jointly by the Mathematical Sociology and Social Psychology Sections. This session will build on the longstanding connections between the sections and explore new opportunities for further development. We invite papers that advance, extend, test, or build on existing computational and mathematically formalized theoretical models in social psychology (or introduce new models or extensions); employ mathematical and computational models and methods (including but not limited to network analysis, agent-based models, text analysis, machine learning, and mathematical modeling) to explore social psychological questions and/or theory in innovative ways; work employing unique sources of data/complex data and computational methods to explore social psychological questions and/or theory; and work that demonstrates how social psychological theory and insights may be utilized by the broader population of mathematical and computational sociologists across the discipline. We especially invite works in progress (e.g., extended abstracts) that would benefit from professional feedback.

Cognizing Social Networks - Eric Martin Feltham, Yale University; Laura Forastiere, Yale School of Public Health; Nicholas A Christakis, Yale University

Data-Adaptive Experimentation to Find Contexts with the Most and Least Discrimination - Jennah Gosciak, Cornell University; Daniel Molitor, Cornell University; Ian Lundberg, Cornell University

Some Birds Have Mixed Feathers: Network Selection and Influence on Racial Identification Choices of Multiracial Adolescents - David R. Schaefer, University of California-Irvine; Sara I. Villalta, Loyola Marymount University; Victoria Vezaldenos, University of Michigan; Adriana Umana-Taylor, Harvard Graduate School of Education

Status Discrimination on Class - William Foley, Universidad Nacional de Educación a Distancia; Arnout van de Rijt, European University Institute; Klarita Gërxhani, VU Amsterdam.

Regular Session on Mathematical Sociology

Sat, August 10, 4:00 to 5:30pm, Palais des Congrès de Montréal, Floor: Level 5, 513C

Session Organizer and Presider: Zack W. Almquist, University of Washington.
Discussant: Ihsan Kahveci, University of Washington.

Mathematical sociology leverages the power of statistics, mathematics, and computational tools to investigate social phenomena. The research presented in this session furthers the advancement of mathematical sociology by introducing novel findings, methodologies, and empirical data pertinent to social dynamics, network analysis, decision-making, and survey research.

A Return to Biased Nets: New Specifications and Approximate Bayesian Inference - Carter T. Butts, University of California-Irvine

Evolutionary game-theoretic rationality, rejection of relative deprivation, social intelligence, and social discrimination - Kazuo Yamaguchi, University of Chicago

Cumulative advantage and talent are generically confounded in longitudinal data on success - Arnout van de Rijt, European University Institute; Lucas Sage, GEMASS/CNRS; Alexandros Gelastopoulos, University of Southern Denmark.

Interviewer Clusters: Detecting Problematic Interviewers in Survey Data - Alexander Murray-Watters, University of California-Irvine; Stefan Zins, Institut für Arbeitsmarkt und Berufsforschung (IAB), Germany

Moving Towards a Cohesive Individual and Placed Based Measure of Social Vulnerability - Katherine Ann Calle Willyard, U.S. Census Bureau

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Joint Reception
(with Section on Social Psychology and Section on Sociology of Emotions)

Sat, 10 August, 6:30 to 8:30 pm,
Offsite Location: Le Jardin, Delta Hotels by Marriott Montréal,
475 President Kennedy Avenue

Formal Models of Duality in Culture and Society
(Jointly Sponsored with Sociology of Culture)

Sun, August 11, 8:00 to 9:30am, Palais des Congrès de Montréal, Floor: Level 5, 511E

Organizer, President, and Discussant: Omar Lizardo, University of California, Los Angeles.

Marking fifty years since its publication, Ron Breiger's 1974 paper on "The Duality of Persons and Groups" continues to serve as the foundation of a lively research agenda across various fields in sociology. During the last five decades, scholars have exploited and generalized Breiger's duality idea "beyond persons and groups" to apply to all settings featuring a dual co-constitution of entities across different orders of organization. This session seeks papers pushing Breiger's duality idea forward both in terms of formal methodological innovation and substantive application to core issues in cultural analysis and the measurement of culture broadly conceived. These may include duality in cultural networks, fields of cultural production and consumption, cases and variables, persons and beliefs, and symbols and practices. Papers seeking to move "beyond duality" methodologically and substantively will also be considered.

Beyond Statistical Variables: Examining the Duality of Persons and Groups in Structuring Cultural Space - Yongren Shi, University of Iowa; Kevin Kiley, North Carolina State University; Freda B. Lynn, University of Iowa

Social Foci as Two-Mode Networks: From Affiliation to Interpersonal Closure - Neha Gondal, Boston University

Synthetic Duality: A Framework for Analyzing Natural Language Generation's Representation of Social Reality - Daniel Karell, Yale University; Ryan William Barrett, Yale University

The Duality of Persons and Groups, and their (Status) Attributes: Turning Network Analysis "Inside Out" - Laura K. Nelson, University of British Columbia; Jessica Gold, Northeastern University; Timothy Fraser; Kathrin Zippel, Freie Universität Berlin.

Open Topics in Mathematical Sociology: Flash Talks Session

Sun, August 11, 12:00 to 1:00pm, Palais des Congrès de Montréal, Floor: Level 7, 710B

Session Organizers: John Skvoretz, University of South Florida, and Lynn Smith-Lovin, Duke University

Parsimony, logical rigor, and substantive importance come together in Mathematical Sociology Flash Talks. This is not a typical paper session. A flash talk paper session creates many full-audience presentation opportunities within a single session. Short flash talk style presentations will be delivered to the full audience, followed by the same number of presentation-specific small group roundtable Q&A discussions. While the session format is different, the projects are the same. We invite papers and extended abstracts that use mathematics, social network analysis, and/or computational methods to advance sociological knowledge. Projects making theoretical, empirical, and/or methodological advances are all excellent fits for this session. Extended abstracts describing promising work in progress are encouraged.

Selection and demand-based explanations for curriculum differentiation policies within American schools: an agent-based model - Joao Souto-Maior, New York University

An agent-based model of stochastic punishment by authorized third parties in public goods game - Ge-yang Chen, Jeonbuk National University; Jae-Woo Kim, Jeonbuk National University

Weathering the Storm: Examining how Two Common Transitions influence adolescents' conflict networks - Haoyang Zhang, Pennsylvania State University; Diane H. Felmlee, Pennsylvania State University

Duality and Autonomy: Toward Modeling Culture in Action - Austen Mack-Crane, Cornell University

Highbrow Soundscapes: Simulating Competition Between Four Highbrow Music Genres over the course of 30 years - Nicolas LeRoy Harder, University of South Carolina-Columbia

Personas in Romance-Adjacent Identities: Classifying Practical Operation with Affect Control Theory - Chelsea Rae Kelly, The Catholic University of America

Resilience in Crisis: In-Silico Insights into Communication Network Dynamics After Personnel Loss - Scott Leo Renshaw, Carnegie Mellon University; Selena Margarita Livas, University of California-Irvine; Carter T. Butts, University of California-Irvine

Social Preferences and Influence Networks: A Mathematical Exploration - Maurice Bokanga, University of Chicago

A Framework for Efficient Computation of Sufficient Statistics in Relational Event Models Applied to Large Datasets - Diego F. Leal, University of Arizona; Kevin A. Carson University of Arizona.

The Influence of Network Structure on International Migration in Western Honduran Communities - Loring J Thomas, University of California, Irvine; Filiz Garip, Princeton University; Nicholas A Christakis, Yale University.

Section Business Meeting

Sun, August 11, 1:00 to 1:30pm, Palais des Congrès de Montréal, Floor: Level 7, 710B

Computational and Mathematical Approaches to Qualitative and Quantitative Data (Jointly Sponsored with the Methodology Section)

Sun, August 11, 2:00 to 3:30pm, Palais des Congrès de Montréal, Floor: Level 5, 511A

Organizer and Presider: Laura K. Nelson, University of British Columbia

The increasing importance of unstructured or nontraditional data, especially text, audio, and video data, maps, and networks, continues to introduce new challenges for sociological methodology, particularly the increasing importance of integrating computational and mathematical methods with existing qualitative and quantitative methods. This panel, co-sponsored by the Section on Mathematical Sociology and the Section on Methodology, will examine the integration of computational and mathematical methods into sociology, including, but not limited to, methods to analyze fine-grained spatial observations, multimodal data (images+text), video and audio data, large-scale networks, and AI-generated text and images. We invite applied and methodological papers that explore how computational and mathematical approaches are transforming data analysis and interpretation in sociology, particularly in ways that contribute to bridging the gap between qualitative and quantitative data. The panel aims to push the boundaries of contemporary research methodologies while staying grounded in our own sociological traditions.

Embedding Regression for Comparative Discourse Analysis: Tracing Far Right Ideology Across Media Ecosystems - Jesse Callahan Bryant, Yale University

In Silico Sociology: Forecasting COVID-19 Polarization with Large Language Models - Austin Kozlowski, University of Chicago; Hyunku Kwon; James A. Evans, University of Chicago

Meaning in Hyperspace: Word Embeddings as Models of Culture - Andrei G. Boutyline, University of Michigan-Ann Arbor; Alina Arseniev-Koehler, University of California-Los Angeles; Ethan Johnston, University of Michigan-Ann Arbor

Qualitative Sociology in a Computational Era: Classic Issues, Emerging Trends, and New Possibilities - Corey M. Abramson, University of Arizona

Sites of Division: Using Network Analysis and GPT to Examine Social and Spatial Division - Elizabeth Roberto, Rice University; Tina Law, University of California, Davis

Computational and Mathematical Approaches to Social Problems and Inequalities (Jointly Sponsored with Decision Making, Social Networks, and Society)

Mon, August 12, 2:00 to 3:30pm, Palais des Congrès de Montréal, Floor: Level 5, 512H

Session Organizer: Diego F. Leal, University of Arizona
Presider: Kevin A. Carson, University of Arizona

This session invites paper submissions that leverage mathematical and computational models and methods (including, but not limited to, network analysis, agent-based models, text analysis, machine learning, and mathematical modeling) to the study of social problems and inequalities, broadly conceived (e.g., segregation, persistent poverty, racial and gender inequality, environmental disasters and their consequences, health care, discrimination, political polarization, crime, the impact of new technologies, imperialism, etc.). Paper submissions that develop new computational or mathematical methods (or introduce new models or extensions) to study social problems and inequalities are also welcomed.

A Scalable Methodology for Operationalizing Landlord Characteristics from Administrative Data - Henry Gomory, Princeton University

Cross-Cutting Ties among Polarized Political Elites - Sang Won Han, Columbia University; Minjae Kim, Rice University

On Nonprofits and Neoliberalism: A Computational Approach to Cultural Ideology - Isaac Dalke, University of California-Berkeley

Public Opinion and Network Structures: Core and Periphery Effects on Belief Change - William Holtkamp, University of North Carolina-Chapel Hill; Scott W. Duxbury, University of North Carolina-Chapel Hill

The Causal Effect of Volatility: Estimation by Marginal Structural Models - Ian Lundberg, Cornell University; Nanum Jeon, University of California-Los Angeles; Hao Liang, Cornell University

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Member's Publications

Jasso, Guillermina. 2023. "Fifty Years of Justice Research: Seven Signposts Past and Future." Social Justice Research 36(3):305-324. https://doi.org/10.1007/s11211-023-00419-5 . View-only sharelink https://rdcu.be/djH1E .
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Jasso, Guillermina. 2024. "Poverty, Redistribution, and the Middle Class: Redistribution via Probability Distributions vs. Redistribution via the Linear Income Tax System." Frontiers in Sociology 8:1334925. Published online 2 February 2024. https://doi.org/10.3389/fsoc.2023.1334925 .

Accinelli Elvio, García Armando, Sánchez Carrera Edgar, **Zazueta Jorge.** 2023. "On the Strategic Complementarity of Skilled Workers and Technological Innovation: Which Determines Which?" Studies in Microeconomics. 11(2):206-234. https://doi.org/10.1177/23210222211024383.

Accinelli Elvio, Quintas Luis, Muñiz Humberto, and **Zazueta Jorge.** 2024. "Can the indifferent population affect the spread of rumors?" Journal of Dynamics and Games. 11(1):1-19. https://doi:10.3934/jdg.2023005

Yoshimichi Sato and Hiroki Takikawa (eds.), 2024, Sociological Foundations of Computational Social Science, Springer. This book provides solid sociological foundations to computational social science (CSS), filling the gap between CSS and sociology. It shows that CSS can solve major research questions by focusing on critical sociological theories and concepts such as meaning and interpretation.

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Honors

Guillermina Jasso delivered the Clifford C. Clogg Memorial Lectures, sponsored by the Departments of Sociology and Statistics, at Pennsylvania State University in April 2024. The first lecture was titled "How Statistics Advances Sociology," and the second was titled "How Sociology Advances Statistics."

A conversation with Guillermina Jasso was featured in the Spring 2024 Newsletter of the Social Statistics Section of the American Statistical Association.

Jorge Zazueta participated in a round table to discuss "How does AI think?" within the framework of the "Society 5.0 workshops: Reflections about AI and the Social Sciences" organized by the Ibero-American Network of Computational Social Sciences.

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Standing Committees

Committee on Nominations

Dawn T. Robinson
University of Georgia
(Chair)

Anthony Paik
University of
Massachusetts-Amherst

Program Committee

Noah Mark
University of North Carolina at
Charlotte (Chair)

Diane Felmlee
Pennsylvania State University

Diego F. Leal

Outstanding Graduate Student Paper Award

Craig M. Rawlings,
Duke University
(Chair)

Charles Gomez,
University of Arizona

Outstanding Article Publication Award

Xi Song, University of
Pennsylvania (Chair)

Dennis Feehan, University
of California, Berkeley

Kimberly Rogers
Dartmouth College

Jane Sell
Texas A&M University

Maurice Bokanga
University of Chicago

University of Arizona

Omar Lizardo
University of California, Los Angeles

David Melamed
Ohio State University

Laura K. Nelson
University of British Columbia

John Skvoretz
University of South Florida

Lynn Smith-Lovin
Duke University

Zara Jillani, University of Georgia

Mario D. Molina, New York University Abu Dhabi

Jun Zhao, University of South Carolina

Benjamin Fields, University of California, Riverside

Thomas Davidson, Rutgers University

Yongren Shi, University of Iowa

James S. Coleman Distinguished Career Achievement Award

Neha Gondal, Boston University (Chair)

Jennie E. Brand, University of California, Los Angeles

Carter Butts, University of California, Irvine

Ronald L. Breiger, University of Arizona

John Skvoretz, University of South Florida

Geoffrey Tootell Mathematical Sociology Outstanding Dissertation in Progress Award

Weihua An, Emory University (Chair)

Bryan Cannon, Alice Lloyd College

Guillermina Jasso, New York University

Zachary Kline, University of Connecticut

Emma Spiro, University of Washington

Award for Progress in Mathematical Sociology

Tim Liao, Stony Brook University (Chair)

Dana Haynie, Ohio State University

Kevin Lewis, University of California, San Diego

Gianluca Manzo, Sorbonne University

Lynn Smith-Lovin, Duke University

Ad Hoc Committees Authorized by Council for 2023-24

Diversity, Equity, and Inclusion

Mark Pachucki, University of Massachusetts, Amherst (Chair)

Nanum Jeon, University of California and Los Angeles

Allison Leanage, McMaster University

Membership Affairs

Noah Mark, University of North Carolina at Charlotte (Chair)

Diane Felmlee, Pennsylvania State University

Tenshi Kawashima, University of Georgia

External Affairs

Elisa Bienenstock, Arizona State University (Chair)

Noah Mark, University of North Carolina at Charlotte

Scott Renshaw, Carnegie Mellon University

Dawn Robinson, University of Georgia

Hannah Waight, New York University

Scott Renshaw, Carnegie Mellon University

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2024 Section Awards

James S. Coleman Distinguished Career Award in Mathematical Sociology

Committee Chair: Neha Gondal (Boston University)

Committee members: Jennie E. Brand, University of California, Los Angeles; Carter Butts, University of California, Irvine; Ronald L. Breiger, University of Arizona; John Skvoretz, University of South Florida.

Winner:

Kathleen Carley, professor in the Software and Societal Systems Department in Carnegie Mellon's School of Computer Science.

Kathleen Carley is the 2024 recipient of the Mathematical Sociology Section's James S. Coleman Distinguished Career Award. Dr. Carley is currently professor in the Software and Societal Systems Department in Carnegie Mellon's School of Computer Science. She is also the director of the Center for Computational Analysis of Social and Organizational Systems. This award recognizes Dr. Carley's significant and exemplary contributions to the field as a scientist, mentor, and leader. Indeed, Dr. Carley has been a key figure in mathematical sociology and social network analysis advancing computational work as early as the 1980s and 1990s. Cited well over fifty thousand times, her significant body of work comprising hundreds of books, articles, book chapters, reports, and conference proceedings is incredibly wide-ranging spanning network analysis, culture, theory, organizations, diffusion, and medical sociology to name a few. She is especially well known in sociology for her pioneering work in the computational analysis of text data, a topic gaining increasing traction today in subfields as varied as cultural and medical sociology. In addition to her enormous contributions to science, Dr. Carley has been a leader in the computational social science community and has
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played a vital role in fostering bridges between mathematical sociology and other disciplines including computer and management science. Her contributions to training and mentorship are just as extensive. In addition to advising and supervising an incredibly long list of students, Dr. Carley has run regular summer schools, training students from a variety of different disciplines in computational methods and network analysis. Dr. Carley has also organized numerous specialized conferences on computational social sciences, including events which came to be instrumental in launching NAACOS, one of the earliest CSS communities. This award adds to a long list of accolades recognizing Dr. Carley's remarkable contributions to science including membership in the AAAS. We are privileged to be able to have Dr. Carley as a member of the ASA Mathematical Sociology section!

Consistent with Mathematical Sociology Section tradition, Dr. Carley will deliver the Coleman Lecture to the Section at the ASA Meeting next year (August 2025).

Award for Progress in Mathematical Sociology

Committee Chair: Tim F. Liao (Stony Brook University)

Committee members: Dana Haynie, Ohio State University; Kevin Lewis, University of California, San Diego; Gianluca Manzo, Sorbonne University; Lynn Smith-Lovin, Duke University

This award, given annually, is for a discovery, technical innovation, or invention representing a significant contribution to progress in mathematical sociology. It is particularly meant to recognize an idea that has enriched the work of a wide range of social scientists doing work that uses a formal, mathematical approach. In that way, it is distinct from an award for a specific publication or for a career of achievement.

Winner:

Ronald L. Breiger, Regents Professor and Professor of Sociology, University of Arizona.

For his development of the concept of **DUALITY**.

This year is the 50th anniversary of the publication of Breiger's groundbreaking paper "The Duality of Persons and Groups" in Social Forces (Vol. 53, no. 2: 181-190), in which he took Simmel's seminal ideas and represented them in matrix terms. He demonstrated how a rectangular matrix linking entities (persons, groups) at different levels that were co-constitutive of each other could be manipulated mathematically to reveal meaningful patterns of relationships at each of the two levels (in the two square matrices that could be created from the rectangular one). In celebration of this 50th anniversary and the remarkable body of literature that has flowed from the duality concept, there was a conference in Switzerland this April that included presentations by 75 scholars who used the duality framework in an amazing variety of ways. There is also a special issue of Poetics and social networks in development. This outpouring of current work using the mathematical formulation of duality speaks volumes to the usefulness of Breiger's duality formulation

by people other than him and his students. This mathematical formulation of classic ideas has enriched the range of topics and theories.

Outstanding Article Publication Award in Mathematical Sociology

Committee Chair: Xi Song (University of Pennsylvania)

Committee members: Dennis Feehan, University of California, Berkeley; Benjamin Fields, University of California, Riverside; Thomas Davidson, Rutgers University; Yongren Shi, University of Iowa.

Winner: **Jennie E. Brand, Jiahui Xu, Bernard Koch, and Pablo Geraldo**. For "**Uncovering sociological effect heterogeneity using tree-based machine learning**." Sociological Methodology 51, no. 2 (2021): 189-223.

This article tackles a crucial challenge in sociology: understanding why people respond differently to social influences. Sociologists traditionally study how people react differently to "interventions" by looking at pre-determined groups like race or gender. Yet, these methods may miss hidden variations. Drawing on a data-driven, machine-learning approach, this article introduces causal trees to uncover entirely new subgroups with unique responses. Furthermore, using observational data, the authors expand on the existing causal tree literature by applying leaf-specific effect estimation strategies to adjust for observed confounding. This article exemplifies how new mathematical and computational tools can effectively address longstanding sociological questions and improve our understanding of social processes.

Honorable Mention: **James Chu**. For "**Clarity from violence? Intragroup aggression and the structure of status hierarchies**." American Sociological Review 88, no. 3 (2023): 454-492.

This article explores how peer aggression impacts the clarity of group status hierarchies. Traditionally, research has focused on how status hierarchies influence aggression, but this study reverses the perspective to examine how aggression affects these social structures. The study uses agent-based network models to formalize theories on how violence affects status hierarchies, revealing that clear hierarchies form when there is a consensus on what constitutes aggression, even if aggression is judged negatively. The author overcomes significant analytic challenges by developing a novel "status clarity" measure through the network structure of friendship nominations and using cross-lagged panel models to address reverse causality. This research offers a powerful new framework for understanding how individual actions shape group dynamics.

Geoffrey Tootell Mathematical Sociology Outstanding Dissertation-in-Progress Award

Committee Chair: Weihua An (Emory University)

Committee members: Bryan Cannon, Alice Lloyd College; Guillermina Jasso, New York University; Zachary Kline, University of Connecticut; Emma Spiro, University of Washington

Winner: **William Holtkamp** (University of North Carolina, Chapel Hill) for "**Belief Systems, Network Locations, and Belief Change: The Effects and Determinants of Core and Periphery Belief Network Positions.**"

The 2024 Geoffrey Tootell Mathematical Sociology Outstanding Dissertation-in-Progress Award will be given to William Holtkamp from University of North Carolina at Chapel Hill for his ongoing dissertation titled "Belief Systems, Network Locations, and Belief Change: The Effects and Determinants of Core and Periphery Belief Network Positions." In this dissertation, William examines whether the positions of beliefs within a belief network affect how these beliefs change over time and seeks to determine if the difference between location within the core and periphery of the belief network is key to differences across beliefs in how they change. Most generally, he theorizes that beliefs in the core of a belief system will change at a slower rate than those that are within the periphery of the belief system. He uses data from years 1972-2016 of the General Social Survey (GSS) to test this and related hypotheses about belief network structure and belief change. The committee is impressed by how far along the dissertation has progressed. Within 78 pages it presents both theoretical and methodological innovations, interesting preliminary results, and very promising further data analysis plans. Hence, the committee is delighted to give the award to William Holtkamp, whose project stood out within a highly competitive and promising pool of applications.

Outstanding Graduate Student Paper Award

Committee Chair: Craig Rawlings (Duke University)

Winner:

Benjamin Rosche (Cornell University) for "**Socioeconomic Segregation in Adolescent Friendship Networks: A Network Analysis of Social Closure in US High Schools.**"

Benjamin Rosche's paper impressed the committee with its methodological rigor and substantive contributions. Rosche advances recent high-profile work on socioeconomic segregation in friendship

networks, deepening our understanding of the complex mechanisms that produce such enduring segregation patterns. He shows that behind the so-called "SES bias" in friendship choices is a set of interrelated factors, including racial homophily and structural constraints imposed by neighborhoods, courses, and extracurricular activities within high schools. His paper is also methodologically innovative. It breaks new ground for future work by extending tie selection models (ERGMs) to multiple levels and incorporating survey weights. It is an impressive application of a rigorous mathematical sociological approach to an enduring and essential substantive puzzle.

Honorable Mention: **Peng Huang** (UC-Irvine, University of Georgia) for "**Parameter Estimation Procedures for Exponential-Family Random Graph Models on Count-Valued Networks: A Comparative Simulation Study**" (with Carter Butts) published in Social Networks 76: 51-67.

Peng Huang's paper with Carter Butts inaugurates a new era in social network research by extending ERGMs to valued networks. While a large number of social relations have an inherent tie strength, and network scholars are clearly interested in modeling such variation in tie strength, existing ERGMs have been limited to binary data. Their article implements and evaluates a new procedure for accurate and efficient estimations of valued ties, even in large-scale data such as the international migration system. Their article, therefore, opens up a wide terrain for understanding the exogenous and endogenous factors that jointly shape systems of valued ties.

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Thank you for your timely contributions to this issue of the Mathematical Sociologist. Please continue to send us your announcements, articles, book reviews, conference announcements, etc. The more you are involved with the newsletter, the better it will be. Please feel free to send us your comments, concerns, corrections, or any ideas you have for the newsletter.

Have a great Fall semester, and watch your email for future newsletter editor requests!

Newsletter Co-editors

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Mission Statement of the Mathematical Sociology Section

The purpose of the Mathematical Sociology Section of the American Sociological Association is to encourage, enhance, and foster research, teaching, and other professional activities in mathematical sociology for the development of sociology and the benefit of society through organized meetings, conferences, newsletters, publications, awards, and other means deemed appropriate by the Section Council. In addition, the Section seeks to promote communication, collaboration, and consultation among scholars in sociology in general, mathematical sociology, and allied scientific disciplines.