Welcome to ACP50 Committee on Traffic Flow Theory and Characteristics

August 23, 2022

Introductions Members/Friends

2022 Committee rotation

- Welcome to all our new members!!!!

- New international members:
    - Francesco Viti (Univ Luxembourg) - Luxembourg
    - Lina Kattan (Univ Calgary) – Canada
    - Marco Rinaldi (AMS) – Netherlands
- New members:
    - Maria Laura Delle Monache (Berkeley)
    - Ramachandran Balakrishna (Caliper)
    - Biagio Ciuffo (JRC)
    - Tamara Djukic (ECTRI)
    - Silvia Varotto (EPFL)

2022 Committee rotation

- New young members
    - Panchamy Krishnakumari (TU Delft)
    - Irene Martinez (TU Delft)
    - Kenan Zhang (ETHZ / EPFL)
    - Rafegh Aghmohammadi (Michigan)

- V. Gayah remains our Comittee Research Coordinator (CRC) and S. Hamdar has been appointed Secretary

- We are still looking for one State DOT Member (suggestions are welcomed)
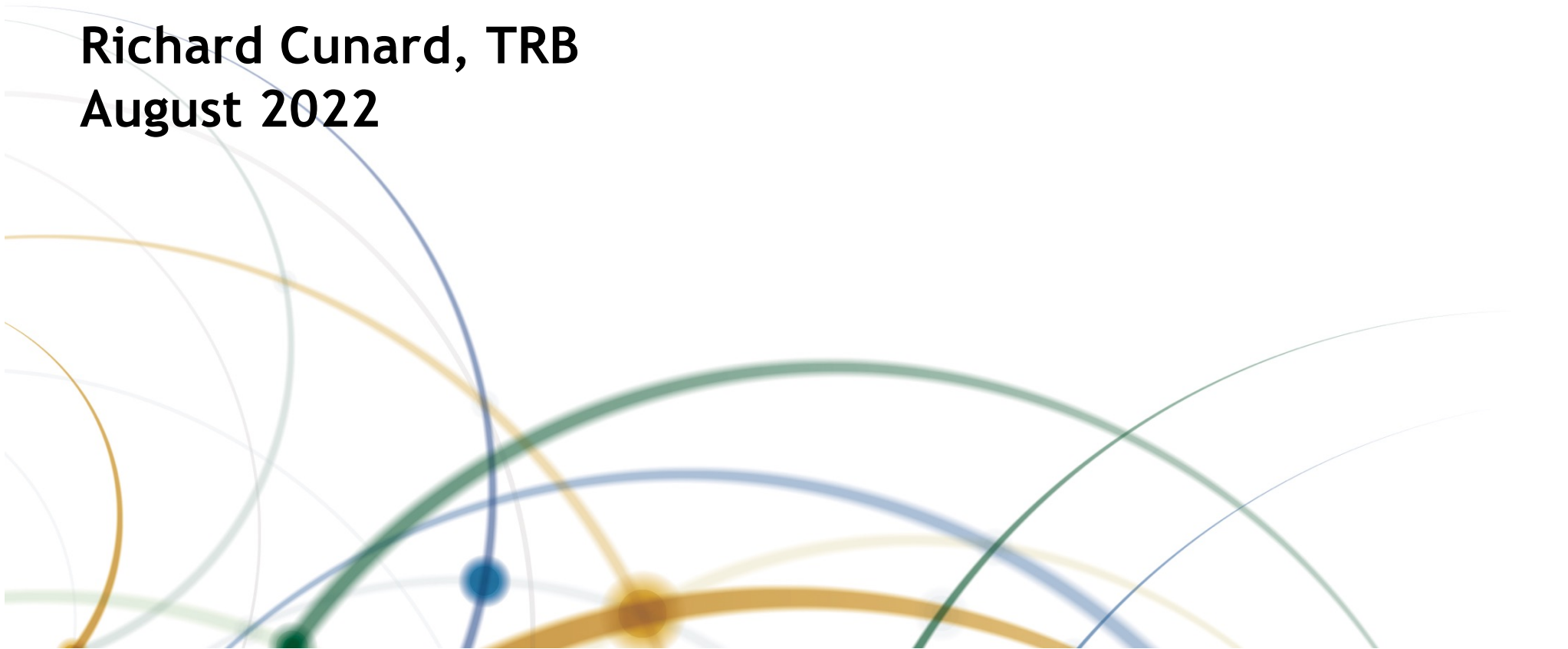- Gender ratio in now 31%

Agenda

- **Welcome and Call to Order**   **L. Leclercq**
- **Introductions – Members & Friends**   **All Attendees**
- **Review and Approval of Minutes**   **L. Leclercq**
- **Committee Meeting of January 11th, 2022**
- **TRB Report**   **R. Bertini / R. Cunard**
- **FHWA Programs & Activities**   **J. Sturrock/R. James**
- **Chair Report**   **L. Leclercq**
- TFTC Subcommittee Reports
- Liaison with other Committees   All Attendees
- International Liason
- Announcements and Future Meetings   All Attendees
- Adjourn

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TRANSPORTATION RESEARCH BOARD
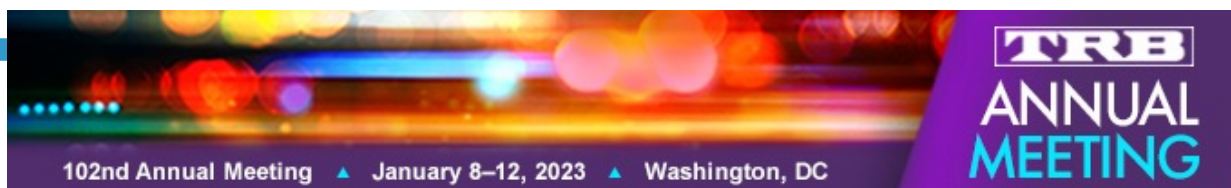
TRB Report
Summer 2022

Richard Cunard, TRB
August 2022

2023 TRB Annual Meeting

- January 8-12, 2023

- It will be an **in-person** event!

- Venues:
    - Washington DC Convention Center;
    - Marriott Marquis

- COVID Health and Safety Procedures
    - Changing almost daily basis
    - As of now, our guidance will follow the requirements issued from the DC Government

- Session, Poster, and meeting room configurations will be somewhat returning to pre-COVID setups. Some smaller rooms being combined into one larger room

- 102nd Annual Meeting
  - January 8-12, 2023
- Theme:
  - *Rejuvenation Out of Disruption: Envisioning a Transportation System for a Dynamic Future.*
- Registration should open mid-September
- >5,000 papers received

www.trb.org/AnnualMeeting

Transportation Research Board
101st Annual Meeting
Washington, DC • January 9–13, 2022

January 2022 Annual Meeting

- ~7,500 attendees;
- \>4,700 papers were received for peer review;
  - 1,450+ were Operations and Safety related
- 400+ sessions and workshops (>80 Ops and Safety);
- 420+ Committee and Subcommittee meetings;
- \>200 Exhibits

Future TRB Annual Meetings

- Future meeting schedule:
  - January 8–12, 2023
  - January 7–11, 2024
  - January 5–9, 2025
  - January 11–15, 2026
  - January 10–14, 2027
  - January 9–13, 2028
  - January 7–11, 2029
  - January 13-17, 2030

TRR Impact Factor Over 2.0

TRR Impact Factor is now 2.019

The TRR citation impact factor has been released for 2021 (which is reported in 2022)

- TRR Impact Factor Recent History:
    - 2020   1.560
    - 2019   1.029
    - 2018   0.748
    - 2017   0.695

TRB Automated Road Vehicle Symposium 2022 (ARTS22)

- The presentations and videos from TRB ARTS22 are now available online:
    - www.trb.org/ARTS22
- While there, view USDOT Secretary Pete Buttigieg's video remarks.

New - 7th Edition of the Highway Capacity Manual

- Now Available

  - **New Electronic Format**

    - e-Book (Kindle, etc.)

    - E-Pub ('smart' PDF)

    - These versions now contain the additional Supplemental Information taken from the online **HCM Volume 4**, ~1,200 pages of additional material.

  - **Print version**

    - Now Available!

    - ~1,275 pages in 3-volumes

New - 7th Edition HCM (continued)

- **New and Expanded Features**
  - Analysis methods for CAVs
  - Enhanced Pedestrian analysis at intersections
  - Network analysis to evaluate effects of spillback at interchanges
  - Estimate travel time across facilities
  - Conduct lane-by-lane analysis for freeways
  - More …

TRB Weekly
Re-subscribe today!

- Subscribe to the *TRB Weekly* newsletter for the most recent TRB news & research
- New platform started late last year.
- Previous subscribers must **re-subscribe**

https://bit.ly/ResubscribeTRBWeekly

TRB's TRID Database

- TRB's TRID database is the world's largest and most comprehensive bibliographic resource on transportation research information

- https://trid.trb.org/

TRB Reports and Research

- TRB Library 'Snap Searches'

  - Snap Searches provide a succinct summary of current activities in TRB on a given topic including:
    - A list of recent reports from TRB and the National Academies
    - Current and upcoming projects related to the topic
    - Names of Committees working on relevant issues
    - Upcoming events such as conferences and webinars

- There are 66 subject areas that are predefined

TRB Reports and Research (continued)

- The Snap Searches can be found at:
  https://www.trb.org/InformationServices/Snap.aspx

- Example:

TRB TRANSPORTATION RESEARCH BOARD

TRB Snap Search: Operations & Traffic Management

TRB's involvement in research on Operations & Traffic Management from 2021-2022

The Transportation Research Board (TRB) provides innovative, research-based solutions to improve how we move. TRB is part of the National Academies of Sciences, Engineering, and Medicine, an independent, non-profit institution that provides objective advice on scientific, engineering, and medical issues.

A resource to the nation and to the transportation community worldwide, TRB provides an extensive portfolio of services:
- Opportunities for information exchange on current transportation research and practice
- Management of cooperative research and other research programs
- Analyses of national transportation policy issues and guidance on federal and other research programs
- Publications and access to research information from around the world

All available Snap Searches can be accessed online here: http://www.trb.org/InformationServices/Snap.aspx

TRB Research

TRID – The world's largest and most comprehensive bibliographic source on all modes and disciplines of transportation
- Click here to view search results on TRB published research on Operations & Traffic Management within the past year.

Subject Webpage
- Operations & Traffic Management Research at TRB

Recent Reports & Publications
- Airport Cooperative Research Program (ACRP)
  - Impacts on Practice - Investing in Self-Serve Fueling Stations at Eagle River Union Airport
  - Report 237 - Primer and Framework for Considering an Airport Noise and Operations Monitoring System
  - Report 231 - Evaluating the Traveler's Perspective to Improve the Airport Customer Experience
  - Report 230 - Enhancing Academic Programs to Prepare Future Airport Industry Professionals
  - Report 229 - Airport Collaborative Decision Making (ACDM) to Manage Adverse Conditions
  - Synthesis 117 - Agricultural Operations on Airport Grounds

- National Cooperative Highway Research Program (NCHRP)
  - IDEA Report 228 - A Retroreflective Road Lane Marking Tape 1,000X Brighter than Existing Technology
  - IDEA Report 209 - An Automated System for Pedestrian Facility Data Collection from Aerial Images
  - Report 986 - Implementation of the AASHTO Guide for Enterprise Risk Management
  - Report 981 - Development of Guidelines for Quantifying Benefits of Traffic Incident Management Strategies
  - Report 978 - Initiating the Systems Engineering Process for Rural Connected Vehicle Corridors, Volume 1: Research Overview

Become Involved with TRB!

- TRB brings together the foremost thinkers and innovators in transportation with practitioners and government officials to:

  - Share the latest research results
  - Share ideas regarding how current problems are being addressed
  - Identify issues that need solutions
  - Advance the state of knowledge and practice
  - Discuss governmental policies and requirements
  - Develop new contacts; network with colleagues

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TRANSPORTATION RESEARCH BOARD

Thanks!!!

Richard Cunard, P.E.
TRB Engineer of Traffic & Operations
rcunard@nas.edu

U.S. DOT/FHWA Report

- Jim Sturrock
- Rachel James

Chair Report

- 3 Call for Papers were opened:
    - Traffic flow operations in large-scale urban networks (24)
    - Behavioral Studies in the Presence of Autonomous Vehicles: From Human Factor Research to Modeling and Simulation (13)
    - Towards Reproducible Transportation Research (7)

- Connected and Automated Vehicles' (CAVs') Adoption in Freight, Ride-Share, Transit and Paratransit Services: From Behavioral Modeling to Fleet Deployment Studies – sponsored by:
    - ACP50 - Traffic Flow Theory and Characteristics
    - ACH30 – Committee on Human Factors of Vehicles (Dr. Jing Feng - jfeng2@ncsu.edu)
    - AED50 – Committee on Artificial Intelligence and Advanced Computing Applications (Dr. Mecit Cetin - MCetin@odu.edu)
    - AP080 – Committee on Transit Safety and Security (Dr. Lisa Staes - staes@usf.edu)

- Approved and scheduled on Sunday

- 172 papers received (22% increase)

Paper Review committee

We are currently very busy

Please accept review invitations

Subcommittees

1. Connected Automated Traffic Flow   Hamdar
2. Research Problem Statements   Gayah
3. Paper Review   L. Leclercq
4. Awards   S. Ahn
5. Mid-Year Meetings   L. Leclercq
6. Outreach and Diversity   S. Hamdar/A. Talebpour

Meeting

ACP50(3) Subcommittee: Connected and Automated Traffic Flow (CAT-Flow) Subcommittee

ACP50(3) Report

ACP 50 Mid-Year Virtual Meeting

August 2022

TRB January 2023 (acceptable number of CAV related papers):

18 handled by ACP50-3 directly; 13 submitted to new Special Call for Papers :

Behavioral Studies in the Presence of Autonomous Vehicles: From Human Factor Research to Modeling and Simulation

CFP's organizers:

- Danjue Chen (danjue_chen@uml.edu)
- Samer Hamdar (hamdar@gwu.edu)
- Lina Kattan (lkattan@ucalgay.ca)
- Ludovic Leclercq (ludovic.leclercq@univ-eiffel.fr)
- Michail Makridis (mmakridis@ethz.ch)
- Anshuman Sharma (anshuman.sharma@uq.net.au)
- Meng Wang (meng.v.wang@gmail.com)
- Zuduo Zheng (zuduo.zheng@uq.edu.au)

Thank you for CAT-Flow members and friends for your reviews – please continue engaging us and supporting us with your time and responsiveness

Connected and Automated Traffic Flow (CAT-Flow) Subcommittee – ACP50 (3)

TRB January 2023 - Workshop (tentatively accepted for a Sunday in person proposal)

Title: Connected and Automated Vehicles' (CAVs') Adoption in Freight, Ride-Share, Transit and Paratransit Services: From Behavioral Modeling to Fleet Deployment Studies.

Co-Sponsoring Committees/Leeds:

- ACH30 – Committee on Human Factors of Vehicles (Dr. Jing Feng - jfeng2@ncsu.edu)

- AED50 – Committee on Artificial Intelligence and Advanced Computing Applications (Dr. Mecit Cetin - MCetin@odu.edu)

- AP080 – Committee on Transit Safety and Security (Dr. Lisa Staes - staes@usf.edu)

Reminder:

- Website Being Updated:

    https://tftcav.seas.gwu.edu

- Expanded List of Members and Friends: 50+

- Possible additional collaboration / joint sponsorships: ACP80, ACP40 discussed

Research CAV Survey Document (based on TRB 2020/2021 Workshops) – To Be Updated At TRB2023 Workshop …..

Research Needs and Progress:

1- Starting with ACC ….. ACC initiative/Webinar Series

--> 2-day online workshop (AI in CAV Traffic Flow) – Yang Zhou and Danjue Chen

2- Lane Changing

3- CAV at junctions ….etc.

4- Fleet and Deployment

Connected and Automated Traffic Flow (CAT-Flow) Subcommittee – ACP50 (3)

- Subcommittee Expanded 2nd Meeting:
  - September/October 2022
- Special thanks to all committee members …..:

Name	Affiliation
Danjue Chen	University of Wisconsin, Madison
Ali Zochai	Michigan State University
Alireza Talebpour	UIUC
Amir Ghiasi	Leidos
Anshuman Sharma	Postdoctoral fellow, IISc, India
Bingyi Fan	Northwestern University
Chenfeng Xiong	University of Maryland
Claire Silverstein	Noblis-GWU
Dan Work	University of Vanderbilt
Danjue Chen	University of Massachussets, Lowel
Dazhou Li	Shenyang University of Chemical Technology
Gabor Orosz	University of Michigan, Ann Arbor
Haizhong Wang	Oregon State University
Hao Zhou	Georgia tech
Jian Wang	School of Transportation, Southeast University
Jian Zhang	Beijing Key Laboratory of Traffic Engineering, Beijing University of Technology
Jiang Rui (姜锐)	Beijing Jiaotong University
Jiaqi Ma	UCLA
Jing Dong	Iowa State University
Jinhua TAN	Zhongnan University of Economics and Law
Kitae Jang	KAIST
Kuilin Zhang	Michigan Tech University
Li Song	University of north carolina at charlotte
Lina Kattan	University of Calgary
Mark Brackstone	AIMSUM
Meixin Zhu	University of Washington
Meng Wang	TU Delft, Netherlands
Michael Levin	University of Minnesota
Michail Makridis	ETH Zurich
Mohaiminul Haque	George Washington University

Monica Menendez	NYU - Abu Dhabi
Omer Verbas	Argone National Laboratory
PENGFEI ZHAO	Beijing University of Civil Engineering and Architecture
Qian Chen	Southeast University, school of automation
Rachel James	USDOT - FHWA
Rafegh Aghamohammadi	Georgia Tech
Rami Ammourah	UIUC
Reza Khajeh-Hossein	UIUC
Samer Hamdar	George Washington University
Seungmo Kang	Korea University
Shun SU	BOKU Universität Wien
Simeon Calvert	TU Delft
Siyuan Gong	Department of Computer Science, College of Information Engineering, Chang'an University, China
Stephen Mattingly	University of Texas at Arlington
Tian junfang (田钧方)	Tianjin University
Tu Xu	Zhejiang Lab, Hangzhou, China
Wei Ma	The Hong Kong Polytechnic University
Xiaopeng (Shaw) Li	University of South Florida
Xuesong (Simon) Zhou	Arizona State University
Yang Zhou	University of Wisconsin Madison
Yangjiao Chen	Georgia Institute of Technology
Yasir Ali	Queensland University of Technology
Yuan Zheng	Hong Kong polytechnic university
Zhengtian Xu	George Washington University
Zuduo Zheng	University of Queensland

(Continuous Expansion/ Young Sub-Sub-Committee ☺)

Subcommittees

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2. Research Problem Statements   Gayah / Leclercq
3. Paper Review   Leclercq
4. Awards   Ahn
5. Mid-Year Meetings   Leclercq
6. Outreach and Diversity   Hamdar/ Talebpour

Goals as CRC

- Identify research needs
- Develop research needs statements
- Seek funding sources
- Submit RNSs to funding programs
- Share information about research needs and research in progress
- Develop/maintain research portfolios

Research Needs Statements

- Identify and explain research need that can eventually be turned into a project (e.g., NCHRP)
- Due Nov 1 annually
- Can be written by anyone
- Must be submitted and supported by:
    - State highway safety office
    - Governors highway safety association executive board member
    - NHSTA
    - The more, the better
- Reviewed for AASHTO committee on Research and Innovation
- If selected, results in NCHRP project!
- Would love to have help from volunteers to develop these!
    - Great opportunity for senior PhD students or early career individuals to get engaged!
    - Email Vikash if interested in helping

Research Needs Statements

- Submitted one RNS last year jointly with SimSub
    - Title: Simulating Mixed Heterogeneous Traffic Flows for Better Assessment of Heavy Vehicles
    - TFTC contributing members: Mohammed Hadi, Samer Hamdar, Danjue Chen, Vikash Gayah
    - Supported by: Virginia and Wisconsin DOTs, supported by North Carolina, California, Florida DOTs

Research Needs Statements

- Potential collaborative avenues discussed during TRB AM:
  - SimSub
  - Safety committees
  - Highway Capacity committee
  - Network modeling committee
  - Freeway operations committee
- Volunteers available that work with these committees and can engage in these efforts???

NCHRP Synthesis topics

- Documents current practice for specific highway topic
- If selected:
    - Results in funded project of $55K to to review of specific area
    - Can lead to future NCHRP project
- Due February 2023
- Can be written and submitted by anyone
- Would love to have help from volunteers to develop these!!!
    - Great opportunity for senior PhD students or early career individuals to get engaged!
    - Email Vikash if interested in helping

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Paper review process

- 172 papers

Annual Meeting	2023	2022	2021	2020	2019	2018	2017
Papers received	**172**	**140**	106	194	196	194	207
Presentation only	112	97	59	93	80	64	67
	65%	69%	56%	48%	41%	33%	32%
Publication only		0	0	0	0	4	1
			0%	0%	0%	2%	0%
Present and publish	64	43	46	101	116	126	139
	35%	31%	44%	52%	59%	65%	67%

Review Timeline

Dates	Process	Review Outcome
Aug 1	Papers due	
Aug 18	Review Assignment	**Please 'accept/decline' review invitations!**
Sept 15	Reviews due	
Oct 1-15	1st round decision	Presentation: Accept, Reject Publication: Reject or Moved to Editorial Review

Review process after moved to editorial review

- Assigned to an Associate Editor and then a Handling Editor
- A handling editor may invite additional reviewers or make a decision (accept, revise, reject)
- No firm deadline

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TFTC Awards

- Award subcommittee :
  - Jiwon Kim
  - Monica Menendez
  - Rob Bertini
  - Sue Ahn

- New process will be tested this year:
  - Papers review will be done in October based on the initial submission
  - The committee will contact finalists to know if they agree to submit their paper to TRR
  - Results will be announced in January 2023 along with 2022

TFTC Awards

- **Greenshields prize:**
  - We have decided not to give this award to any paper this year.
- **Nathan Gartner prize:**
  - 22-04077: A Real-Time Distributed Cooperative Adaptive Cruise Control Model Considering Time Delays and Actuator Lag (by Yingtong Tan and Kuilin Zhang). The manuscript presents a real-time predictive distributed CACC control framework that addresses time delays and actuator lag issues in the real-time networked control systems.
- **Cunard award:**
  - We have decided not to nominate any paper this year.
- **Burggraf award:**
  - We have decided not to nominate any paper this year.
- **Mickle award:**
  - We have decided not to nominate any paper this year.

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Mid-Year Meetings

- Midyear meeting 2020, 2021, 2022 → Online

- Midyear meeting 2023
    - Amsterdam, The Netherlands

- Midyear meeting 2024
    - ISTTT25, Michigan

Mid-Year Meetings

- 2023 Amsterdam, the Netherlands
- 2022 Online
- 2021 Online
- 2020 Online
- 2019 ISTTT Lausanne, Switzerland
- 2018 Woods Hole, Massachusetts
- 2017 ISTTT Chicago
- 2016 Sydney, Australia
- 2015 ISTTT Kobe, Japan
- 2014 Portland, Oregon, USA, Symposium Celebrating 50 Years of TFT
- 2013 ISTTT, Noordwijk, the Netherlands
- 2012 Joint Summer Meeting with HCQS Committee, Fort Lauderdale, Florida
- 2011 ISTTT Berkeley (one hour w/SimSub)
- 2010 Does Traffic Data Support Traffic Models? Annecy, France
- 2009 ISTTT Hong Kong, China (lunch table)
- 2008 Greenshields Symposium, Woods Hole, Massachusetts
- 2007 ISTTT London, UK (in pub)

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Liaison with Other Committees

- ACP40 Highway Capacity Quality of Service Committee - J. Sturrock/Others?

- ACP80 Traffic Simulation Committee - Kaan Ozbay/ Others?

- Young Member Council - E. Gonzales

- Others?
  - ACP15 Intelligent Transportation Systems
  - ACP20 Standing Committee on Freeway Operations
  - ACP30 Vehicle-Highway Automation
  - AEP40 Transportation Network Modeling

Announcements and Future Meetings

- ISTTT25, July 15-17, 2024, Michigan, USA
    - Call of paper is opened, Deadline: Dec, 1st

New Buisness

Adjourn

See you virtually in January!