



Welcome to ACP50 Committee on Traffic Flow Theory and Characteristics

August 23, 2021



Introductions Members/Friends

Introductions Members/Friends



Agenda



-
- **Welcome and Call to Order** L. Leclercq
 - **Introductions – Members & Friends** All Attendees
 - **TRB Report** R. Bertini / R. Cunard
 - **FHWA Programs & Activities** J. Sturrock/R. James
 - **Chair Report** S. Ahn
 - **TFTC Subcommittee Reports**
 - **Liaison with other Committees** All Attendees
 - **Announcements and Future Meetings** All Attendees
 - **Adjourn**
-



TRB Report



- R. Cunard
-



U.S. DOT/FHWA Report



- Jim Sturrock
 - Rachel James
-



Chair Report



- No CFPs because of the COVID regulations
 - In person TRB but with some restrictions:
 - Only one lectern session / committee
 - Only one workshop / section
 - Committee meeting should last no longer than 105 min
 - Workshops will also happen on Thursday morning
 - Submitted one workshop proposals (SimSub), we are currently discussing about a merger with the Traffic simulation committee
 - 140 papers received (32% increase after 45% reduction last year)
-

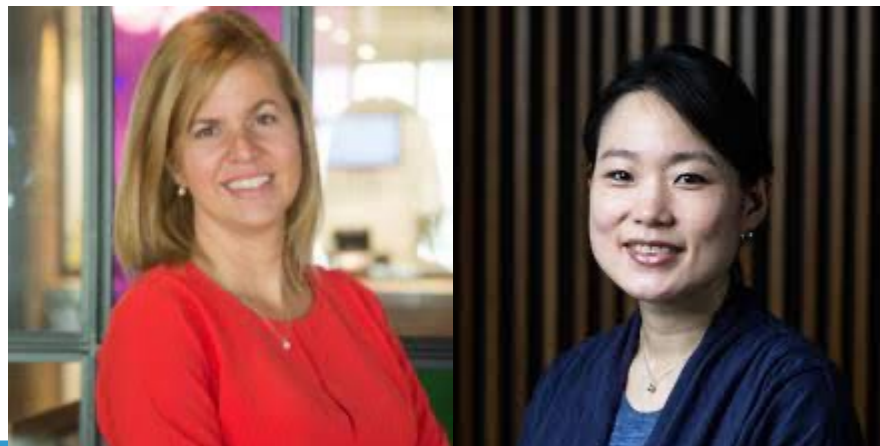


Paper Review committee

We are currently very busy



Introducing our two new members!



Please accept review invitations



Chair Report

- TFTC is now part of the Safety and Operations Section. There is keen interest in finding ways for the larger group of committees to collaborate (including safety, human factors, bicycle, pedestrian, etc)

 - Next rotation is in 2022
 - For actual members, please drop me a personal email to tell if you agree to rotate off or if you wish to go on (you can always pursue your activities as friends)
 - For friends, please tell me if you volunteer to be part of the committee (keeping in mind seats are very limited)
-



Agenda



-
- **Welcome and Call to Order** S. Ahn
 - **Introductions – Members & Friends** All Attendees
 - **TRB Report** R. Bertini
 - **FHWA Programs & Activities** J. Sturrock/R. James
 - **Chair Report** S. Ahn
 - **TFTC Subcommittee Reports**
 - **Liaison with other Committees** All Attendees
 - **Announcements and Future Meetings** All Attendees
 - **Adjourn**
-



Subcommittees



1. **Joint Subcommittee on Traffic Simulation Models** Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
5. Paper Review Leclercq
6. Awards Ahn
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
- 2. Crowd Flow Dynamics, Modeling and Management Sarvi**
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
5. Paper Review Leclercq
6. Awards Ahn
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
- 3. Connected Automated Traffic Flow Hamdar**
4. Research Problem Statements Gayah
5. Paper Review Leclercq
6. Awards Ahn
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Meeting



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

ACP50(3) Report

ACP 50 Mid-Year Virtual Meeting

August 2021



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



TRB January 2022 (Large number of CAV related papers > 40) – No Call for Papers

17 handled by ACP50-3 directly: Thank you for CAT-Flow members and friends for your reviews – please continue engaging us and supporting us with your time and responsiveness

TRB January 2022 - Workshop Proposal

Initial Submitted Title 1: The Past, Present and Future in Traffic Flow: from First Order Continuum Models to Connected and Automated Vehicles (CAVs) Deployment:

Modified Titled 2: Joint with ACP80: The Past, Present and Future in Traffic Flow Simulation: Modeling, Calibration, and Validation of Traffic Phenomena at Roadway Segments and Junctions





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



TRB January 2022 - Workshop Proposal (Cont.)

Initial Content:

This workshop will 1) reflect on major traffic phenomena that have inspired decades of research; 2) recognize how current **ACC vehicles** impact these traffic phenomena in mixed traffic (conventional human-driven vehicles and ACC vehicles); and 3) foresee future traffic phenomena with automated vehicles (all **ACC and CACC vehicles**). Multiple simulation and illustrative experiments will be conducted while seeking feedback from the audience to determine the future research directions to be adopted.

Modified Content:

This workshop will reflect on major traffic phenomena that have inspired decades of research at **road segments** (uninterrupted) and **junctions** (interrupted: interchanges and intersections). In particular, we 1) recognize how current CAV vehicles impact these traffic phenomena in mixed traffic; and 2) foresee future traffic phenomena with **automated vehicles with and without presence of control devices**. Multiple simulation and illustrative experiments will be conducted while seeking feedback from the audience to determine the future research directions to be adopted.

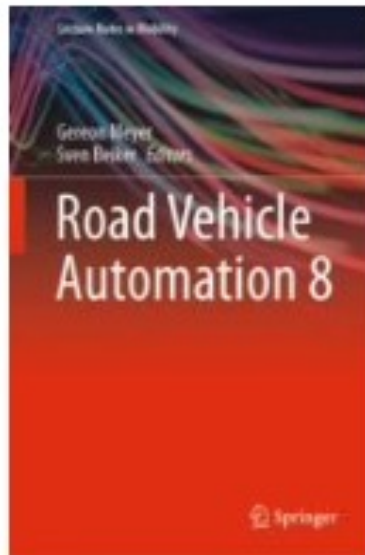




Connected and Automated Traffic Flow (CAT-Flow) Subcommittee – ACP50 (3)



Breakout Session at Automated Vehicle Symposium - Book Chapter




© 2022

Artificial Intelligence for Automated Vehicle Control and Traffic Operations: Challenges and Opportunities

Authors

[Authors and affiliations](#)

David A. Abbink, Peng Hao, Jorge Laval, Shai Shalev-Shwartz, Cathy Wu, Terry Yang, Samer Hamdar , Danjue Chen,
Yuanchang Xie, Xiaopeng Li, Mohaiminul Haque

Conference paper

First Online: 09 July 2021

20

Downloads



AUTOMATED VEHICLES[®]
SYMPOSIUM



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



Miscellaneous:

- New Website Being Updated:

<https://tftcav.seas.gwu.edu>

- Expanded List of Members and Friends: 50+
- Possible Joint Sponsorships: ACP80, ACP 40

Subcommittee on Connected and Automated Traffic Flow (CAT-Flow)

[HOME](#) [MEMBERS](#) [ACTIVITIES](#) [EXCHANGE PORTAL](#) [CONTACT](#)

Home



CALENDAR

June 2021

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27



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



Research CAV Survey Document (based on TRB 2020/2021 Workshops) – To Be Updated Annually

Research Needs and Progress:

- 1- Starting with ACC ACC initiative/Webinar Series
- 2- Lane Changing
- 3- CAV at junctionsetc.





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



ACC Initiative

ACP50-CAV Subcommittee

Danjue Chen, University of Massachusetts Lowell

Tienan Li, University of Massachusetts Lowell

Hao Zhou, Georgia Institute of Technology

Jorge Laval, Georgia Institute of Technology

August 23, 2021





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



ACC INITIATIVE

- Background: recent research has revealed interesting new findings on Adaptive Cruise Control (ACC) in commercial cars, e.g., ACC traffic flow features and impacts on traffic flow and operations.
- Recent efforts of ACC field experiments:
 - OpenACC of JRC
 - ACC stability test of Dr. Dan Work
 - MA-GA ACC experiments of Drs. Danjue Chen and Jorge Laval
 - ACC test of Dr. Xiaopeng Li
 - Others
- ACC initiative – aiming to better spread the research outcomes and facilitate research and applications
 - An ACC webinar series
 - A designated webpage for ACC resources





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



ACC WEBINAR SERIES

- Topics: ACC field experiments, analysis, modeling, simulation, control, etc.
- Speakers: Drs. Christine Buisson, Michalis Makridis, Vincenzo Punzo, Yang Zhou, Tienan Li, Hao Zhou, etc.
- Schedules: [ACC website](#)
- More speakers are welcomed.
- Contact: Danjue Chen (danjue_chen@uml.ed).

SCHEDULE

July 29th, 11 AM EST: Dr. Christine Buisson. <https://bluejeans.com/1280718337>.

Aug 5th, 11 AM EST: Dr. Michalis Makridis. <https://bluejeans.com/1280718337>.

Aug 26th, 11 AM EST: Dr. Yang Zhou. <https://bluejeans.com/1280718337>.

October 15th, 11 AM EST: Drs. Vincenzo Punzo and Biagio Ciuffo and Biago Ciuffo. <https://bluejeans.com/1280718337>.

Future speakers include Tienan Li and Hao Zhou, for whom the schedules are to be announced.

Home Worldwide ACC datasets Research f

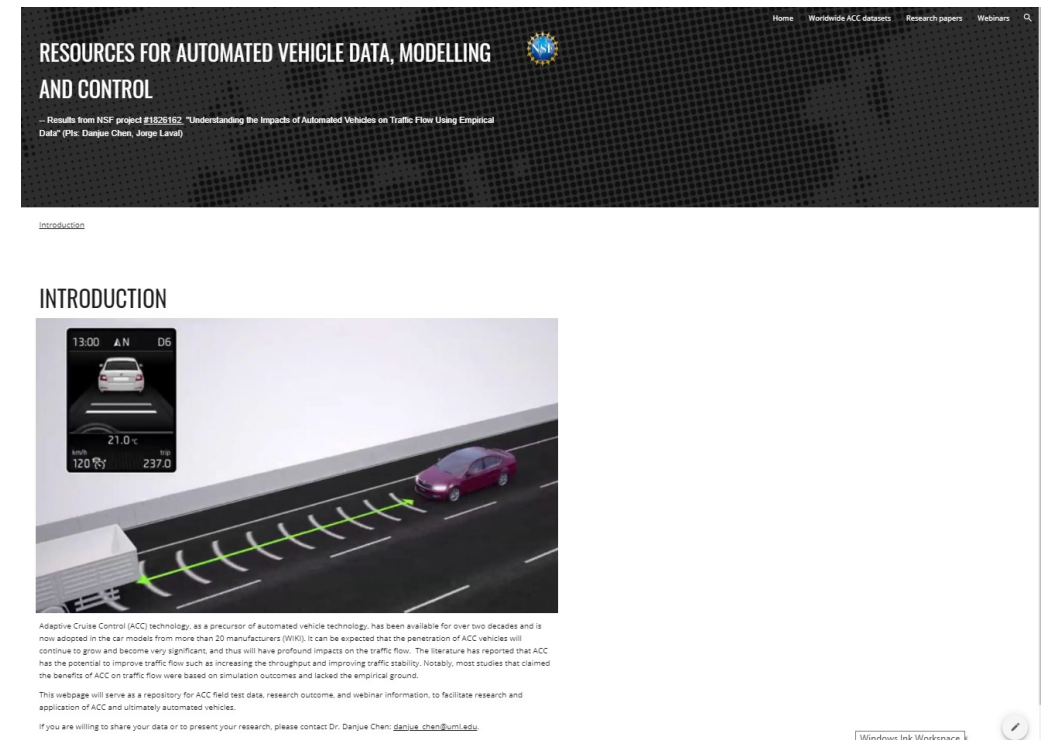


Connected and Automated Traffic Flow (CAT-Flow) Subcommittee – ACP50 (3)



ACC WEBPAGE

- [ACC website](#) (under construction)
- Aim: to serve as a repository of ACC resources for the public
- Content:
 - Experiment data
 - Research outcomes
 - Webinar info
 - Teaching material
 - Others
- If you have, or know of, any relevant data that you would like to share with the public, please contact Danjue Chen.





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



- Subcommittee Expanded 1st (Summer) Meeting:
 - candidate time: Friday August 27, 10 AM US Eastern Time
- Special Thanks to:
 - Sue Ahn
 - Mark Brackstone
 - Simeon Calvert
 - Danjue Chen
 - Ludovic Leclercq
 - Michael Levin
 - Xiaopeng Li
 - Alireza Talebpour

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





Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
- 4. Research Problem Statements Gayah**
5. Paper Review Leclercq
6. Awards Ahn
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



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!!!**
 - **Email Vikash if interested in helping**



Research Needs Statements

- Submitted one RNS this 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 \$45K to review of specific area
 - Can lead to future NCHRP project
 - Due February 2022
 - Can be written and submitted by anyone
 - Would love to have help from volunteers to develop these!!!
 - Email Vikash if interested in helping
-



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
- 5. Paper Review Leclercq**
6. Awards Ahn
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Paper review process

- 140 papers

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



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
5. Paper Review Leclercq
- 6. Awards Ahn**
7. Mid-Year Meetings Ahn/Daamen
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



TFTC Awards



- Award subcommittee (for the papers presented in January 2021):
 - Jiwon Kim
 - Monica Menendez
 - Rob Bertini
 - Sue Ahn (new member joining for 2022 season)
 - Thanks to Ludovic Leclercq for all his years in the sub-committee!!!
- General discussion:
 - Very limited number of papers submitted for presentation and publication, and lower average quality (trend will most likely continue given the decoupling of the journal and the conference).
 - We propose (for the Committee Awards: Greenshield and Theoretical) to accept even papers submitted only for presentation. The only requirement would be to make the paper accessible (even if published with another journal) to the TRB community.
 - It is unclear what will happen to the TRB level awards (Cunard, Mickle, Burggraf)
 - We support the proposal made during the last TRB meeting to name the Best Paper on Traffic Flow Theory Award it after Nathan Gartner



TFTC Awards



- Awards:
 - D. Grant Mickle Award
 - No nomination made this year
 - Fred Burggraf Award
 - No nomination made this year
 - Cunard Award
 - Nomination made
 - Best Paper on Traffic Flow Theory
 - **Replicating Microscopic Fundamental Diagram in Five Minutes** (by Daiheng Ni)
 - Greenshields Prize
 - No award given this year



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
5. Paper Review Ahn
6. Awards Leclercq
- 7. Mid-Year Meetings Leclercq/Daamen**
8. Outreach and Diversity Hamdar
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Mid-Year Meetings



- Midyear meeting 2020 → **Cancelled**
 - Amsterdam, The Netherlands
 - August 17-19, 2020

 - Midyear meeting 2021 (postponed to 2022)
 - ISTTT 24, Beijing, China
 - July 24-26, 2022?

 - Midyear meeting 2023
 - Amsterdam, The Netherlands
-



Mid-Year Meetings



- 2023 Amsterdam, the Netherlands
- 2022 ISTTT Beijing, China
- 2021 Cancelled due to ISTTT postponing
- 2020 Amsterdam, the Netherlands → Cancelled
- 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)



Subcommittees



1. Joint Subcommittee on Traffic Simulation Models Hadi
2. Crowd Flow Dynamics, Modeling and Management Sarvi
3. Connected Automated Traffic Flow Hamdar
4. Research Problem Statements Gayah
5. Paper Review Ahn
6. Awards Leclercq
7. Mid-Year Meetings Ahn/Daamen
- 8. Outreach and Diversity Hamdar**
 - TFTC Webinars Laval
 - TFTC Journal Club Talebpour
 - Committee Website Bertini/Zockaie/Aghamohammadi



Agenda



-
- Welcome and Call to Order S. Ahn
 - Introductions – Members & Friends All Attendees
 - Review and Approval of Minutes S. Ahn
 - TRB Report R. Bertini
 - FHWA Programs & Activities J. Sturrock/R. James
 - Chair Report L.
Leclercq
 - TFTC Subcommittee Reports
 - Liaison with other Committees All Attendees
 - Announcements and Future Meetings All Attendees
 - Adjourn
-



Liaison with Other Committees

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

 - ACP80 Traffic Simulation Committee
M. Hadi?

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



Announcements and Future Meetings



- ISTTT24, July 24-26, 2022, Beijing, China
-



New Buisness





Adjourn



See you virtually in January!
