



1791 Tullie Circle, N.E./Atlanta, GA 30329

404-636-8400

**TC/TG/MTG/TRG MINUTES COVER SHEET**

**(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)**

TC/TG/MTG/TRG No. 1.3 DATE January 29, 2021, 11AM-1PM EST, LOCATION Virtual (Chicago, IL)

TC/TG/MTG/TRG TITLE Heat Transfer and Fluid Flow

MEMBERS PRESENT	END YEAR	MEMBERS ABSENT	END YEAR	EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE
Kashif Nawaz	2022	Omar Abdelaziz	2024	Farhan Juratli
Michael Wilson	2021	Xiaofei Wang	2023	Achim Gotterbarm
Melanie Derby	2021	Stanislav Perencevic	2022	Ahmed Elatar
Joseph Huber	2022			Alex Corvino
Brian Fronk	2022			Alireza Behfar
Lorenzo Cremaschi	2024			Amir Jokar
Satheesh Kulankara	2021			Ben Dingel
Stefan Elbel	2022			Brian Fricke
Vikrant Aute	2021			Cheng-Min Yang
Raymond Rite	2024			Chris Keinath
Andreas Knoepfler	2022			Kishan Padakannaya
				M.M. Shah
				Min Che
				Paul Haydock
				Pratik Deokar
				SA Sherif
				Stefanos Gaitanos
				Will Asher
				Yirong Jiang

1. Call to Order (Nawaz)

Chair Kashif Nawaz called the meeting to order at 11:07 AM EST.

TC 1.3 is concerned with the fundamental principles of the transport of energy, mass, and momentum, especially the study of and application to, physical processes in air conditioning, refrigeration, heating and related areas of environmental engineering.

2. Introduction of members and guests

Attendees introduced themselves on Zoom.

3. Establish quorum requirements (Kashif Nawaz)

Voting members: 11/14 were present, so a quorum was established.

4. ASHRAE Code of Ethics Commitment (Kashif Nawaz)

5. Review of Agenda (Kashif Nawaz)

6. Review/Approve minutes from summer 2020 virtual meeting (Michael Wilson/Melanie Derby)

Passes 11-0-3, (*Rite/Aute*)

7. Section Head Comments (Jennifer Leach)

No updates from the section head.

8. Liaison Comments

No comments

9. Membership Subcommittee (Achim Gotterbarm)

Currently TC 1.3 has 14 voting members, 8 academic, 6 industry

Members rolling off include Wilson, Derby, Kulankara, Aute

New members to roll on include Icksoo Kyung and Pratik Deokar

10. Handbook Subcommittee (Ravi)

Guru Ravi emailed the following update, which was read at the TC 1.3 meeting, “The 2021 Fundamentals Handbook revisions for chapters 3, 4, 5, 6, 33 and checklists were submitted to the committee liaison after February meeting last year. I was at the handbook training sessions earlier this month. It was informed that we should be receiving final proofs for approval by end of February. I will update the committee once I hear back from them. So far everything is on track for publication.

Meanwhile we can start identifying areas that will need revisions for the 2025 revision. Kashif, Vikrant, and Dr. Mizra Shah have volunteered to help with the revision. Additional volunteers and suggestions are welcome.”

Amir Jokar and Brian Fronk volunteered to be on the Handbook Subcommittee. Dr. Mizra Shah suggested added topics on Falling film evaporators and Boiling and condensation in helical coils.

11. Program Subcommittee (Deokar)

Two seminars were submitted and accepted for the 2021 Winter Conference

Seminar 25: Movement and Control of Airborne Pathogens with HVAC Sys 9.6, MTG.ACR, TC 8.11 Feb 11 7AM (EST)

Deokar noted this was the 4<sup>th</sup> highest selected seminar on the ASHRAE app.

Seminar 34: Performance of Alternative low GWP A2L refrigerants in condensers

Feb 11, 3PM

Pratik noted deadlines for the research summit- Extended abstracts are due Feb 15, and Phoenix Program submissions are due Feb 22.

TC 8.4 voted to submit a seminar entitled, “Additively Manufactured Heat Exchanger.” Nawaz suggested focusing on applications or materials.

TC 1.3 voted on co-sponsorship, (*Derby/Rite*), passes 11-0-3

TC 8.5 plans to submit a seminar, “Session Advances in modeling of plate heat exchanger performance.” TC 1.3 members voiced support, suggested changing the title.

TC 1.3 co-sponsorship, (*Aute/Derby*), passes 11-0-3

An additional session co-sponsorship was considered, “Expt study on the effect of enhanced tube characteristics on fouling behavior and fouling prediction model.” Nawaz asked TC 1.3 for potential speakers who might discuss heat transfer and pressure drop, Nawaz will circulate it to the TC.

TC 1.3 co-sponsorship, (*Knoepfler/Huber*), passes 11-0-3

TC 1.3 also discussed the possibility of submitting a program on evaporative performance of low GWP refrigerants (heat transfer and pressure drop) for the 2022 Chicago meeting.

## 12. Status of other current/proposed programs

No report.

## 13. Webmaster (Ahmed Elatar)

No report.

## 14. MTG Liaison: Low GWP Refrigerants (Omar Abdelaziz -Liaison, Satheesh Kulankara – Alt#1, Evraam Gorgy–

Alt#2)

Update from Kulankara. There are no proposed programs for 2021 Winter Conference. RP 1807 and 1808 reports to be included in standards. Three projects include RP 1806, 1855, and WS-1884.

## 15. Research (Joe Huber)

a. RP-1683: “Experimental Evaluation of 2-Phase Pressure Drop and Flow Pattern in U-Bends with

Ammonia”

PMS chair Ray Rite gave an update. The project just started, and has experienced some delays due to Covid-19. Last week, PI Ahmad gave a thorough lit survey. In March, the PMS will review the proposed test rig design and subsequently review the test matrix.

b. RP-1800: “Spray Evap. on Enhanced Tube bundles with low GWP Pure ref. and ref./miscible oil mixtures”

PMS chair Zahid Ayub was unable to attend, Joe Huber gave the project update. There have been some modifications to the facility and the PMS is hopeful for spray test data soon. The project expires on Feb 28, 2021 and Cremaschi is requesting a one-year extension.

Motion: no cost extension to Auburn University for RP 1800, (*Huber/Rite*), passes 10-0-4; Cremaschi abstained due to being PI of RP-1800.

c. Fronk update on New Investigator Award, several journal articles were produced, PhD student graduated, master’s student studying condensation. At the summer meeting, Fronk will present a close out of research accomplishments.

d. Pending research topics and future research plans

RTAR 1909 In tube condensing flue gas heat transfer and pressure drop with enhancements for residential furnaces: Ray Rite and Kishan Padakannaya are working on this RTAR in conjunction with TC 6.3 liaison Paul Haydock .

Aute/Wilson mentioned condensing flows in fluted tubes were discussed in TC 8.5. Other potential topics include low GWP refrigerants in microchannels.

Huber reported on ASHRAE research strategic plan development, report is anticipated this coming February.

2021 AHRI show was canceled this year, and combined with Covid-19, reduced research donations. No new research projects will be awarded in 2020-2021. RAC encouraging RTARs and WS and it is suggested to highlight low GWP in RTARs.

16. Chair Comments (Kashif Nawaz)

Nawaz shared some slides from the TAC chair-VC breakfast and noted TCs may meet quarterly if desired. Reminder about the virtual Winter conference from Feb 9-11.

17. New Business

18. Next meeting: TBD

19. Adjourn

Meeting was adjourned at 1:01PM EST (*Rite/Fronk*)