



Maharaja Agrasen Institute of Technology, Delhi Department of Mechanical Engineering

Department of Mechanical Engineering, Maharaja Agrasen Institute of Technology organized an online webinar on the topic '**Augmentation of Heat Transfer in Internal Flow**' on 22nd January 2022. The event was started with the welcome address of Prof. Neelam Sharma, Director, MAIT who enlightened us with her inspirational and encouraging words. She emphasized the significance of research for the benefit of the students and the faculty.

The main theme of the event was based on the research work carried out by Dr. Sachin Gupta during his PhD. Dr. Sachin Gupta is working as an Assistant Professor in the Department of Mechanical Engineering (ME) at Maharaja Agrasen Institute of Technology, New Delhi. Dr. Sachin is awarded with the Ph.D. degree from J. C. Bose University of Science & Technology, YMCA; Faridabad in the year 2021. He has done his M.Tech in Thermal Engineering in the year 2009 from NIT, Kurukshetra. Dr. Sachin has been involved in the research on experimental and numerical aspects of improving the efficacy of conjugate heat transfer through novel enhancements in heat exchangers. He has authored many research papers in International Journals and Conferences of repute.

Dr. Sachin Gupta presented a very informative talk on '**Augmentation of Heat Transfer in Internal Flow**'. The lecture focuses on the use of winglet as a vortex generator for augmenting the heat transfer for a heat exchanger. The talk started with the introduction of various types of winglets. Further, the use of rectangular winglet was very well explained along with the supporting literature. Dr. Sachin then explained the methodology used for achieving the research objectives. The speaker briefly explained the various configurations of winglet used for punched and non-punched cases of winglet. He then went on to explain the optimum configurations of winglet for maximum thermo-hydraulic performance of heat exchanger. The lecture concluded with the future scope of the research work. The speaker stressed the use of winglet with hole as a method for improving the performance.

Finally, the webinar was ended with a Q & A session. More than 50 participants attended for the same and the event was a grand success.



MAHARAJA AGRASEN INSTITUTE OF TECHNOLOGY

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DEPARTMENT OF MECHANICAL AND AUTOMATION ENGINEERING
&
DEPARTMENT OF MECHANICAL ENGINEERING

Presents

Webinar Series



Dr. Sachin Gupta, Speaker

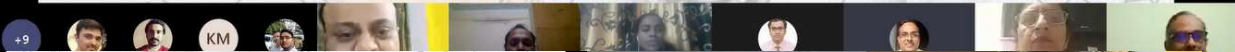
Augmentation of Heat Transfer in Internal Flow

Dr. V. N. Mathur
Head

Department of Mechanical and Automation Engineering

Dr. Vaibhav Jain
Head

Department of Mechanical Engineering

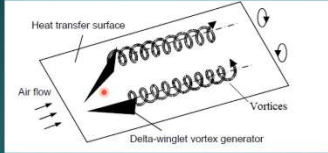


GUEST SPEAKER

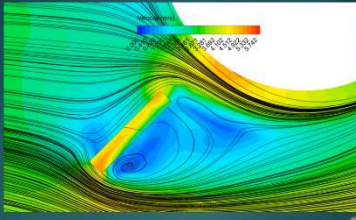


Dr. Sachin Gupta
Department of Mechanical and Automation Engineering

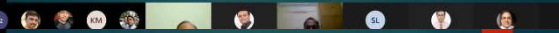
Dr. Sachin Gupta is presently working as an Assistant Professor in the Department of Mechanical and Automation Engineering and Mechanical Engineering at Maharaja Agrasen Institute of Technology, Delhi. He has been recently awarded the Ph.D. degree from J. C. Bose University of Science & Technology, YMCA, Faridabad. Prior to working in MAIT, he worked at Vaish College of Engineering, Rohtak for 7 years. He has a total teaching experience of more than 14 years. As recognition of his academic achievements, he has received a Research Excellence award from YMCA, Faridabad for his research activities. Dr. Gupta's research interests lies in the experimental and numerical aspects of improving the efficacy of conjugate heat transfer through novel enhancements in heat exchangers. He has authored many research papers in reputed International Journals and Conferences. He is also in the reviewer board of few reputed International Journals.

Formation of Vortices



Streamline plot for CFU_j configuration (flow Left to Right)



Outcomes of Research

- For localized performance study, CFU_j configuration exhibits the best thermohydraulic performance with an average improvement of 51.28% over the baseline case, whereas CFU_l configuration reported an average improvement of 4.56% over the baseline case for the same which is the lowest from among the considered configurations.
- For globalized performance study Winglet located in CFU_j configuration reported maximum augmentation in overall thermohydraulic performance with an average improvement of 62.47% over baseline case whereas CFU_l configuration reported the least augmentation with an average improvement of 6.25% over baseline case.

Scope for future work

- ❖ Present study can be extended for different types of tube like oval tube, flat tube etc.
- ❖ Present study considers only one tube for the investigation, but it can be extended for multiple tubes.
- ❖ Present study can also be extended for curved winglet for performance investigation.
- ❖ Present study considers rectangular winglet but we can also extends this work for delta winglet.



Meeting Summary

Total Numt 112

Meeting Title General

Meeting Start 1/22/2022, 3:32:12 PM

Meeting End 1/22/2022, 4:45:15 PM

Meeting Id 11340ca8-3ac2-4281-8379-94fedb376d4c

Full Name	Join Time	Leave Time	Duration	Email	Role	Participant ID (UPN)
Madhukar	1/22/2022, 1/22/2022, 20m 2s			madhukarc	Presenter	madhukarc@mae.mait.ac.in
Sachin Gupta	1/22/2022, 1/22/2022, 1h 56m			saching@n	Organizer	saching@mae.mait.ac.in
Vipin Kumar	1/22/2022, 1/22/2022, 1h 52m			vipink@ma	Presenter	vipink@mae.mait.ac.in
Vaibhav Jain	1/22/2022, 1/22/2022, 1h 50m			vaibhavj@r	Presenter	vaibhavj@mae.mait.ac.in
Sidharth	1/22/2022, 1/22/2022, 1h 49m			sidharth@r	Presenter	sidharth@mae.mait.ac.in
Surbhi Upad	1/22/2022, 1/22/2022, 1h 43m			surbhiu@n	Attendee	surbhiu@mae.mait.ac.in
Naveen So	1/22/2022, 1/22/2022, 1h 42m			naveens@r	Attendee	naveens@mae.mait.ac.in
Garima Sharma	1/22/2022, 1/22/2022, 1h 42m			garimas@n	Attendee	garimas@mae.mait.ac.in
HoD MAE	1/22/2022, 1/22/2022, 1h 41m			hod@mae.	Presenter	hod@mae.mait.ac.in
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Harsh Joshi	1/22/2022, 1/22/2022, 38s			harshj@m	Attendee	harshj@mae.mait.ac.in
Harsh Joshi	1/22/2022, 1/22/2022, 1h 29m			harshj@m	Attendee	harshj@mae.mait.ac.in
Rachna Ch	1/22/2022, 1/22/2022, 37m 59s			rachnac@n	Attendee	rachnac@mae.mait.ac.in
Rachna Ch	1/22/2022, 1/22/2022, 26m 58s			rachnac@n	Attendee	rachnac@mae.mait.ac.in
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Ajay kumar	1/22/2022, 1/22/2022, 1h 31m			btech.le_1	Attendee	btech.le_148@me.mait.ac.in
4.41E+09	1/22/2022, 1/22/2022, 1m 30s			shubham.0	Attendee	shubham.04414811119@me.mait.ac.in
Dean Acad	1/22/2022, 1/22/2022, 41s			deanacad@	Presenter	deanacad@adm.mait.ac.in
Dean Acad	1/22/2022, 1/22/2022, 21m 59s			deanacad@	Presenter	deanacad@adm.mait.ac.in
Rohit Uday	1/22/2022, 1/22/2022, 1h 19m			rohitu@ece	Attendee	rohitu@ece.mait.ac.in
7.91E+09	1/22/2022, 1/22/2022, 14s			rajat.07914	Attendee	rajat.07914803620@mae.mait.ac.in
3.52E+10	1/22/2022, 1/22/2022, 2m 43s			anshuman.	Attendee	anshuman.35214811119@me.mait.ac.in
HoD IT	1/22/2022, 1/22/2022, 1h 19m			hod@it.ma	Attendee	hod@it.mait.ac.in
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Vaibhav Nij	1/22/2022, 1/22/2022, 24m 39s			vaibhavn@	Attendee	vaibhavn@ece.mait.ac.in
Vaibhav Nij	1/22/2022, 1/22/2022, 28m 5s			vaibhavn@	Attendee	vaibhavn@ece.mait.ac.in
Sumedha C	1/22/2022, 1/22/2022, 33m 54s			sumedhag	Attendee	sumedhag@ece.mait.ac.in
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Amit Gaut	1/22/2022, 1/22/2022, 33m 3s			amitg@ma	Attendee	amitg@mae.mait.ac.in
Director M.	1/22/2022, 1/22/2022, 13m 12s			director@a	Presenter	director@adm.mait.ac.in
Alok Sharm	1/22/2022, 1/22/2022, 38m 27s			alok@cse.r	Attendee	alok@cse.mait.ac.in
4.4E+10	1/22/2022, 1/22/2022, 14m 10s			rajat.44014	Attendee	rajat.44014803618@mae.mait.ac.in
Stuti Ganot	1/22/2022, 1/22/2022, 45m 18s			stutig@ece	Attendee	stutig@ece.mait.ac.in
3.52E+10	1/22/2022, 1/22/2022, 1h 12m			aditya.352	Attendee	aditya.35214803618@mae.mait.ac.in
Kanika Aga	1/22/2022, 1/22/2022, 1h 11m			kanikaa@e	Attendee	kanikaa@ece.mait.ac.in
Satish Vern	1/22/2022, 1/22/2022, 1h 11m			satishk@m	Attendee	satishk@mae.mait.ac.in

Nitin Sharn	1/22/2022, 1/22/2022, 1h 9m	nitins@ece	Attendee	nitins@ece.mait.ac.in
8.61E+09	1/22/2022, 1/22/2022, 3m 32s	shivam.086	Attendee	shivam.08614803618@mae.mait.ac.in
2.03E+10	1/22/2022, 1/22/2022, 1h 7m	kunal.2031	Attendee	kunal.20314811120@me.mait.ac.in
4.2E+10	1/22/2022, 1/22/2022, 1h 6m	adarsh.420	Attendee	adarsh.42014803618@mae.mait.ac.in
Atul Kaush	1/22/2022, 1/22/2022, 1h 5m	atulk@mae	Attendee	atulk@mae.mait.ac.in
Prof. Namit	1/22/2022, 1/22/2022, 25m 29s	namita@cs	Presenter	namita@cse.mait.ac.in
8.51E+09	1/22/2022, 1/22/2022, 1m 23s	saheem.08	Attendee	saheem.08514803620@mae.mait.ac.in
3.53E+10	1/22/2022, 1/22/2022, 1m 25s	saksham.3	Attendee	saksham.35314803620@mae.mait.ac.in
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Binay Kumr	1/22/2022, 1/22/2022, 24m 21s	binayk@ec	Attendee	binayk@ece.mait.ac.in
9.41E+09	1/22/2022, 1/22/2022, 55m 9s	tanvir.0941	Attendee	tanvir.09414803620@mae.mait.ac.in
DIVY MEHE	1/22/2022, 1/22/2022, 1m 20s	btech.g1_1	Attendee	btech.g1_121964@apsc.mait.ac.in
PRANAV SI	1/22/2022, 1/22/2022, 58s	btech.g2_4	Attendee	btech.g2_403181@apsc.mait.ac.in
7.15E+08	1/22/2022, 1/22/2022, 19s	aarsh.0071	Attendee	aarsh.00714803619@mae.mait.ac.in
MIRNAL DA	1/22/2022, 1/22/2022, 29s	btech.g2_4	Attendee	btech.g2_430343@apsc.mait.ac.in
AMAN VAT	1/22/2022, 1/22/2022, 34s	btech.g2_5	Attendee	btech.g2_567880@apsc.mait.ac.in
MORE ROS	1/22/2022, 1/22/2022, 19m 11s	btech.g2_2	Attendee	btech.g2_272350@apsc.mait.ac.in
MANSHUL	1/22/2022, 1/22/2022, 1m 28s	btech.g2_3	Attendee	btech.g2_361531@apsc.mait.ac.in
HARSH ARC	1/22/2022, 1/22/2022, 14m	btech.g2_2	Attendee	btech.g2_267910@apsc.mait.ac.in
5.01E+09	1/22/2022, 1/22/2022, 51m 17s	kartik.0501	Attendee	kartik.05014803620@mae.mait.ac.in
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HARSHIT TI	1/22/2022, 1/22/2022, 15s	btech.g1_2	Attendee	btech.g1_233060@apsc.mait.ac.in
ADITYA SIN	1/22/2022, 1/22/2022, 50m 1s	btech.g1_1	Attendee	btech.g1_186531@apsc.mait.ac.in
ADITYA SH	1/22/2022, 1/22/2022, 40s	btech.g1_3	Attendee	btech.g1_375185@apsc.mait.ac.in
Rajni Gulat	1/22/2022, 1/22/2022, 7m 9s	rajnig@ece	Attendee	rajnig@ece.mait.ac.in
KSHITIZ KU	1/22/2022, 1/22/2022, 19s	btech.g2_2	Attendee	btech.g2_239295@apsc.mait.ac.in
Yuv Mendir	1/22/2022, 1/22/2022, 31s	btech.g1_1	Attendee	btech.g1_184386@apsc.mait.ac.in
1.21E+09	1/22/2022, 1/22/2022, 11m 13s	arun.01214	Attendee	arun.01214807420@mae.mait.ac.in
7.11E+09	1/22/2022, 1/22/2022, 18m 56s	parth.0711	Attendee	parth.07114803620@mae.mait.ac.in
4.41E+09	1/22/2022, 1/22/2022, 54s	homesh.04	Attendee	homesh.04414803620@mae.mait.ac.in
4.41E+09	1/22/2022, 1/22/2022, 20m	homesh.04	Attendee	homesh.04414803620@mae.mait.ac.in
R.K.Choudh	1/22/2022, 1/22/2022, 6m 50s	ramac@ec	Attendee	ramac@ece.mait.ac.in
4.81E+09	1/22/2022, 1/22/2022, 33m 8s	kanav.0481	Attendee	kanav.04814803620@mae.mait.ac.in
4.28E+10	1/22/2022, 1/22/2022, 2m 18s	chetanya.4	Attendee	chetanya.42814803618@mae.mait.ac.in
Umesh Ch.	1/22/2022, 1/22/2022, 32m 9s	umeshc@e	Attendee	umeshc@ece.mait.ac.in
SHUBH SIN	1/22/2022, 1/22/2022, 1m 29s	btech.g2_6	Attendee	btech.g2_657616@apsc.mait.ac.in
ABHISHEK	1/22/2022, 1/22/2022, 1m 4s	btech.g2_2	Attendee	btech.g2_266463@apsc.mait.ac.in
2.05E+10	1/22/2022, 1/22/2022, 22m 44s	adarsh.205	Attendee	adarsh.20514811120@me.mait.ac.in
Praveen Ku	1/22/2022, 1/22/2022, 22m 43s	praveenk@	Attendee	praveenk@ece.mait.ac.in
Ajay Kumar	1/22/2022, 1/22/2022, 1m 57s	ajayk@ece	Attendee	ajayk@ece.mait.ac.in
4.21E+09	1/22/2022, 1/22/2022, 1m 30s	taniya.042	Attendee	taniya.04214811120@me.mait.ac.in
3.51E+09	1/22/2022, 1/22/2022, 34s	shobhit.03	Attendee	shobhit.03514811120@me.mait.ac.in
6.71E+09	1/22/2022, 1/22/2022, 2m 35s	neeraj.067	Attendee	neeraj.06714803620@mae.mait.ac.in
2.15E+08	1/22/2022, 1/22/2022, 14m 44s	aditya.002	Attendee	aditya.00214811120@me.mait.ac.in
4.71E+09	1/22/2022, 1/22/2022, 25s	vaibhav.04	Attendee	vaibhav.04714811120@me.mait.ac.in
8.15E+08	1/22/2022, 1/22/2022, 1m 7s	chirag.008	Attendee	chirag.00814811120@me.mait.ac.in
3.21E+09	1/22/2022, 1/22/2022, 5m 25s	saquib.032	Attendee	saquib.03214811120@me.mait.ac.in
1.51E+09	1/22/2022, 1/22/2022, 2m 34s	harsh.0151	Attendee	harsh.01514811120@me.mait.ac.in
7.61E+09	1/22/2022, 1/22/2022, 3m 40s	priyanshu.(Attendee	priyanshu.07614803620@mae.mait.ac.in
3.91E+09	1/22/2022, 1/22/2022, 11m 7s	sparsh.039	Attendee	sparsh.03914811120@me.mait.ac.in
3.55E+10	1/22/2022, 1/22/2022, 1m 8s	diptanshu.:	Attendee	diptanshu.35514811120@me.mait.ac.in
2.06E+10	1/22/2022, 1/22/2022, 29s	aashray.20	Attendee	aashray.20614803120@it.mait.ac.in
4.01E+09	1/22/2022, 1/22/2022, 9m 45s	gaurav.040	Attendee	gaurav.04014803620@mae.mait.ac.in
1.71E+09	1/22/2022, 1/22/2022, 5m 19s	himanshu.(Attendee	himanshu.01714811120@me.mait.ac.in