



RAMCO INSTITUTE OF TECHNOLOGY

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DEPARTMENT OF MECHANICAL ENGINEERING

in association with

RIT – ISHRAE & RIT - ISTE

Wednesday, June 03rd, 2020

Time: 02.00 pm – 03.00 pm

Organizes a Webinar on

Waste heat recovery with absorption heat transformers and its applications



Resource Person:

Dr. S. SEKAR

Professor / Mechanical Engineering,
Rajalakshmi Engineering College,
Chennai.

Free!!!

**Online Platform:
Google Meet**

e-Certificate will be
provided...

<https://tinyurl.com/ritmechishrae>



Register Here



Scan to Register

Faculty Coordinator(s):

Dr. V. Sivakumar, ASCP/Mech.

Mr. N.L. Sujin, AP/Mech.

ISHRAE
Madurai Chapter

STUDENTS
ISHRAE



For Enquiry: Mr. N.L. Sujin, Mob: +91-6374408272, Email: sujin@ritrjpm.ac.in



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Date: 03.06.2020

Time: 2:00 pm – 3:00 pm

Report - Webinar on “Waste heat recovery with absorption heat transformers and its applications”

Department of Mechanical Engineering in association with RIT – ISHRAE and RIT - ISTE organized a Webinar on **Waste heat recovery with absorption heat transformers and its applications** on 03.06.2020 (Monday) between 02:00PM to 03:00PM. Dr. S. Sekar, Professor, Department of Mechanical Engineering, Rajalakshmi Engineering College, Chennai engaged the session with his expertise. 278 participants got benefited from the session which was hosted through Google Meet across India and Overseas. The session was telecasted live through RIT MECH CAD Centre YouTube channel with the help of Mr. J. Jerold John Britto AP(SG)/Mechanical.

Coordinators:

Dr. V. Sivakumar, ASCP/Mechanical

Mr. N.L. Sujin, AP/Mechanical

About the Resource Person:

Dr. S. SEKAR

Professor / Mechanical Engg.,

Rajalakshmi Engg. College,

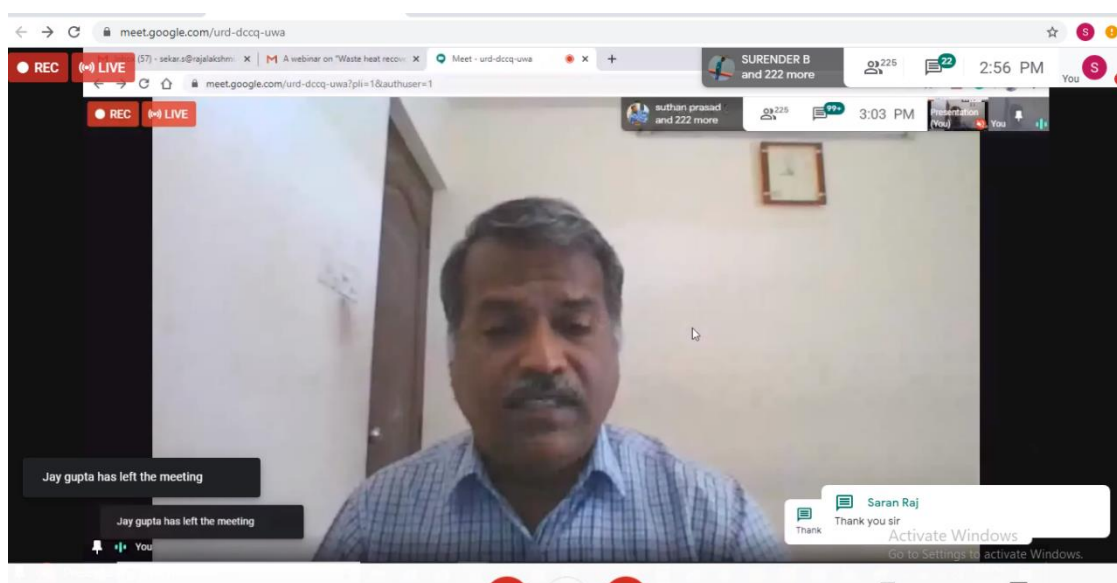
Chennai.



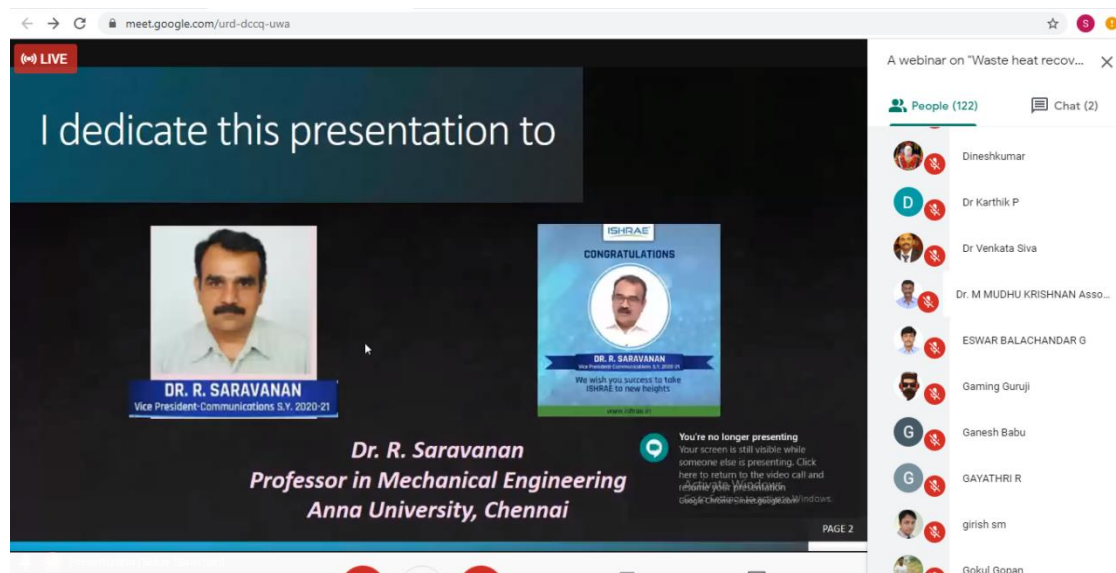
- Completed UG, PG and Ph.D from Anna University
- Pursued PhD in the field of Vapor Absorption heat transformer coupled desalination systems.
- 20 years of teaching experience in reputed institutions like R.M.K Engineering College (more than 10 years), Velammal Engineering College (3 years), Rajalakshmi Engineering College etc.
- More than 30 papers in International Journals and Conferences.

- Anna University recognized research supervisor (Rec. No. 1920416)
- Presently guiding 11 scholars.
- Published a book on Advanced I.C. Engines.
- Reviewer for International Journals.
- Organized many Seminars, Symposia and Conferences.
- Invited speaker at Faculty Development Programs.

Initially the resource person thanked and dedicated his presentation to his professor **Dr.R.Saravanan**, Professor in Mechanical Engineering, Anna University, Chennai.



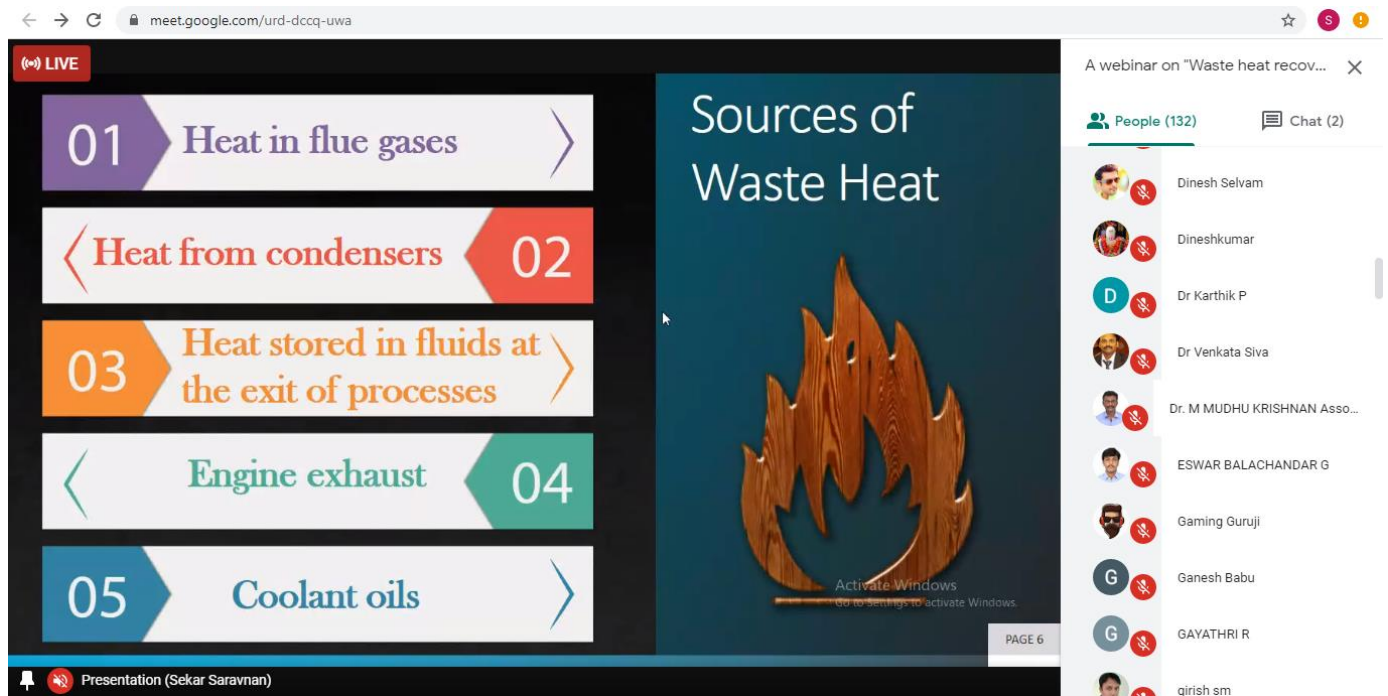
Screenshot of speaker presenting



Screenshot of dedication of speaker's presentation

The session was started with definition of waste heat and its sources. The various heat resources are,

- Heat in flue gases
- Heat from Condenser
- Heat stored at fluids at the exit process
- Engine Exhaust and
- Coolant oil



Screenshot of sources of waste heat

The waste heat recovery methods are as follows,

- Recuperators
- Heat Wheel
- Economiser
- Regenerator
- Heat pipes
- Heat transformers

Among the above mentioned heat recovery methods, heat transformers are widely used in various applications in the industrial zone.

meet.google.com/urd-dccq-uwa

Waste Heat Recovery Methods

Recuperates Heat wheels Economizers

Regenerators Heat pipes

Heat transformers

Vijaykumar has left the meeting

Presentation (Sekar Saravnan)

People (138)

Chat

Prakatish Anish 2:10 PM
SAE 20, 10W20

Ponkumaran M 2:10 PM
Now visible sir

Nawas .As19 2:10 PM
Participants please pin sekar Srinivasan
unmuted account for PPT visible.

Loganathan T G 2:10 PM
Radiator coolant oil

JEREMIAH R 2:10 PM
R. Jeremiah, Assistant Professor, Easwari
Engineering College, Department of
Mechanical Engineering

Ritchie Thomas 2:10 PM
Good Afternoon Rayan sir...

Send a message to everyone

PAGE 7

Screenshot of waste heat recovery methods

An absorption heat transformer (AHT) is a device which transfers heat from an intermediate temperature level to a high temperature level by means of an absorption process. It is driven by the temperature difference between the intermediate temperature and a low temperature level.

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Vapour Absorption Heat Transformer (VAHT)

1000 kg/h at 100°C → A process → 1000 kg/h at 80°C

600 kg/h at 100°C → A process → 1000 kg/h at 80°C

400 kg/h at 100°C → A system → 600 kg/h

VAHT

Presentation (Sekar Saravnan)

People (168)

Chat (11)

Chaitanya Dwivedi

CHAITANYA KUMAR REDDY D...

CHINNASAMY AP III - Mechani...

DEVA PRABHU

Dhanam Lakshmi

DHANASEKAR SEKAR

Dinesh Selvam

Dineshkumar

Dr Karthik P

Dr Venkata Siva

Screenshot of vapour absorption heat transformer

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LIVE

A webinar on "Waste heat recov..."

People (177) Chat

nitesh gupta 2:31 PM
Good presentation
Nice and very informative

CHINNASAMY AP III - Mechanical 2:31 PM
Participants there are two sekar saravanan account in participants list. Kindly pin the second one to see the ppt

ANIT JAISWAL 2:32 PM
Anit Kumar Jaiswal
Sir ppt is not visible
Please share the screen of your presentation

CHINNASAMY AP III - Mechanical 2:32 PM
Participants there are two sekar saravanan account in participants list. Kindly pin the second one to see the ppt

Activate Windows
Go to Settings to activate Windows.

PAGE 11

Activate Windows
Go to Settings to activate Windows.
Send a message to everyone

Heat source Q_e

Saturated vapour

Useful heat Q_u

Evaporator

Absorber

Saturated liquid

Refrigerant

Solution

Solution Heat Exchanger

High pressure side

Low pressure side

Expansion valve

Pump

Superheated vapour

Generator

Heat source Q_g

Condenser

Rejected heat Q_c

Vapour Absorption Heat Transformer

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REC LIVE

TAMILARASANS and 194 more

2:40 PM

heat transformer

Activate Windows
Go to Settings to activate Windows.

PAGE 14

Heat source Q_{g1}

Upgraded heat Q_{a1}

Generator1

Absorber1

Solution Heat Exchanger1

Exp. device

Soln. Pump

Condenser1

Rejected heat Q_{c1}

Heat source Q_{g2}

Upgraded heat Q_{a2}

Generator2

Absorber2

Solution Heat Exchanger2

Exp. device

Soln. Pump

Condenser2

Rejected heat Q_{c2}

Two stage heat transformer (Wang et al. 2002)

meet.google.com/urld-dccq-uwa

REC LIVE

SANKARKUMAR PRITHIVIRAJ is presenting

ishwarya B and 197 more

2:42 PM

Double Absorption Heat Transformer

Activate Windows
Go to Settings to activate Windows.

PAGE 15

Pressure (P)

Temperature (T)

Condenser

Generator

Economizer

Absorber

Evaporator

Heat source Q_g

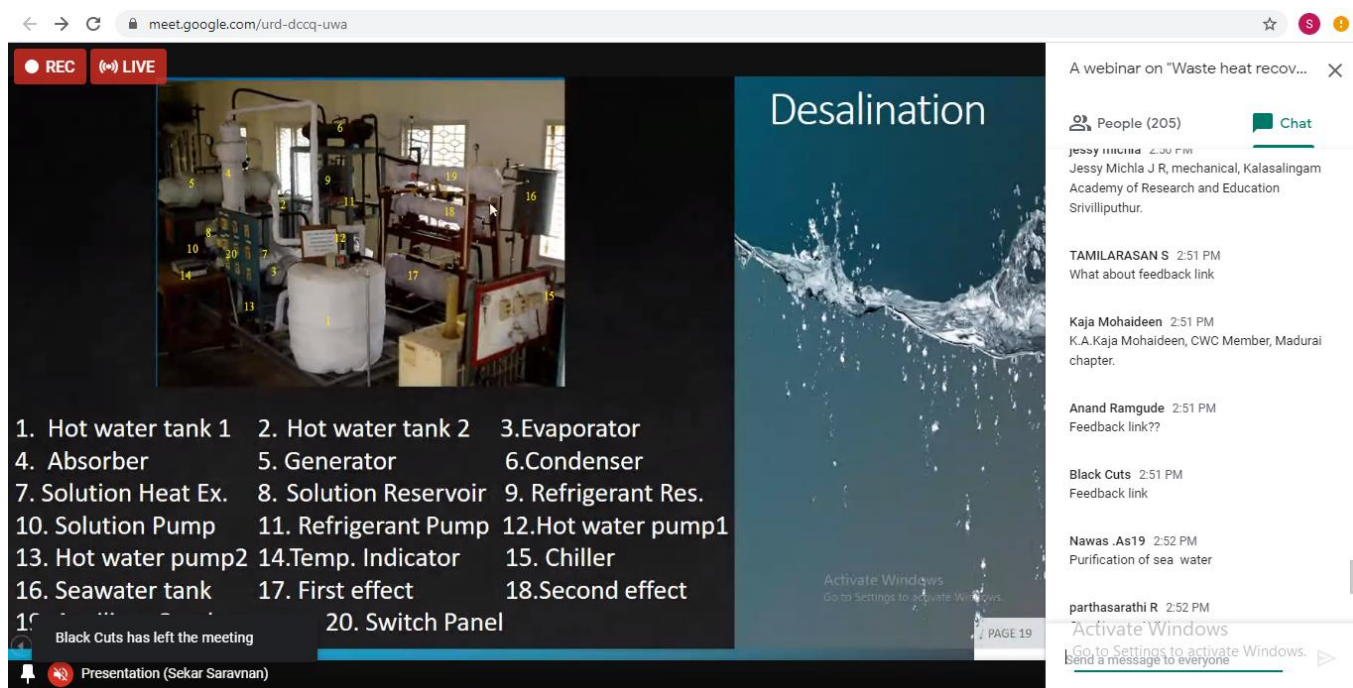
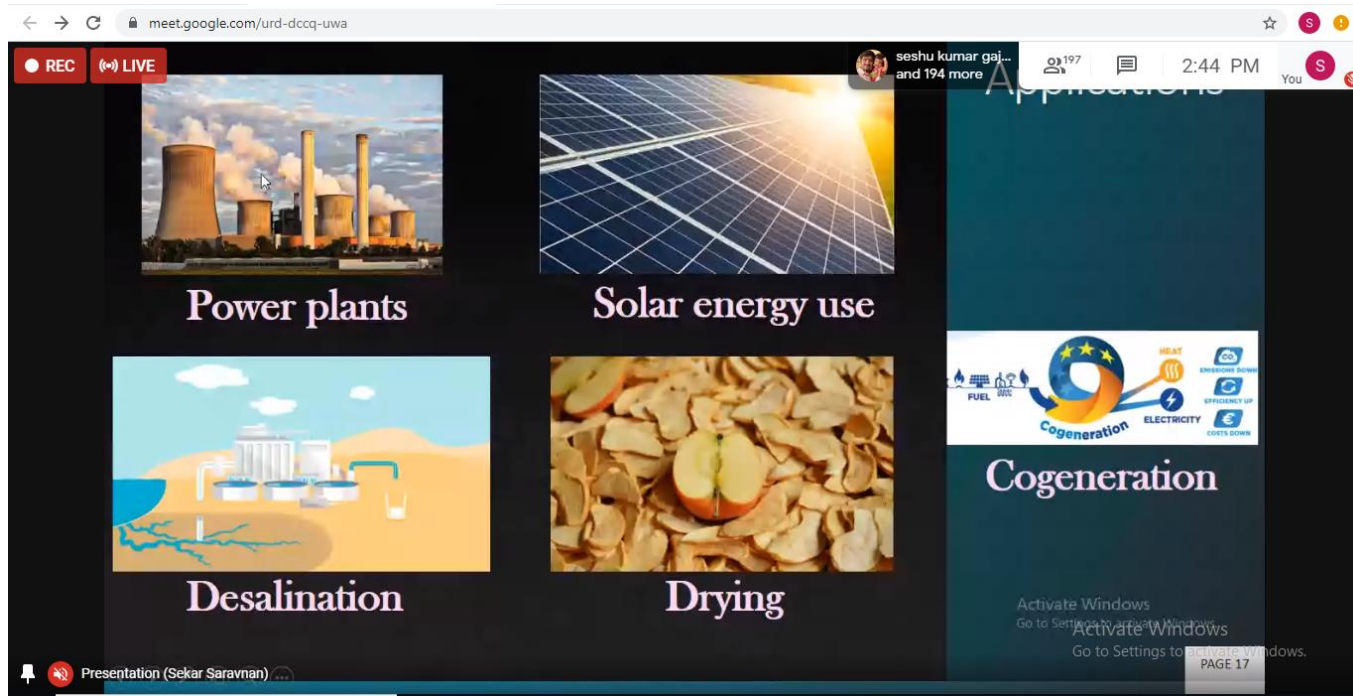
Rejected heat Q_c

Useful heat Q_u

Double AHT (Rivera W et al. 2017)

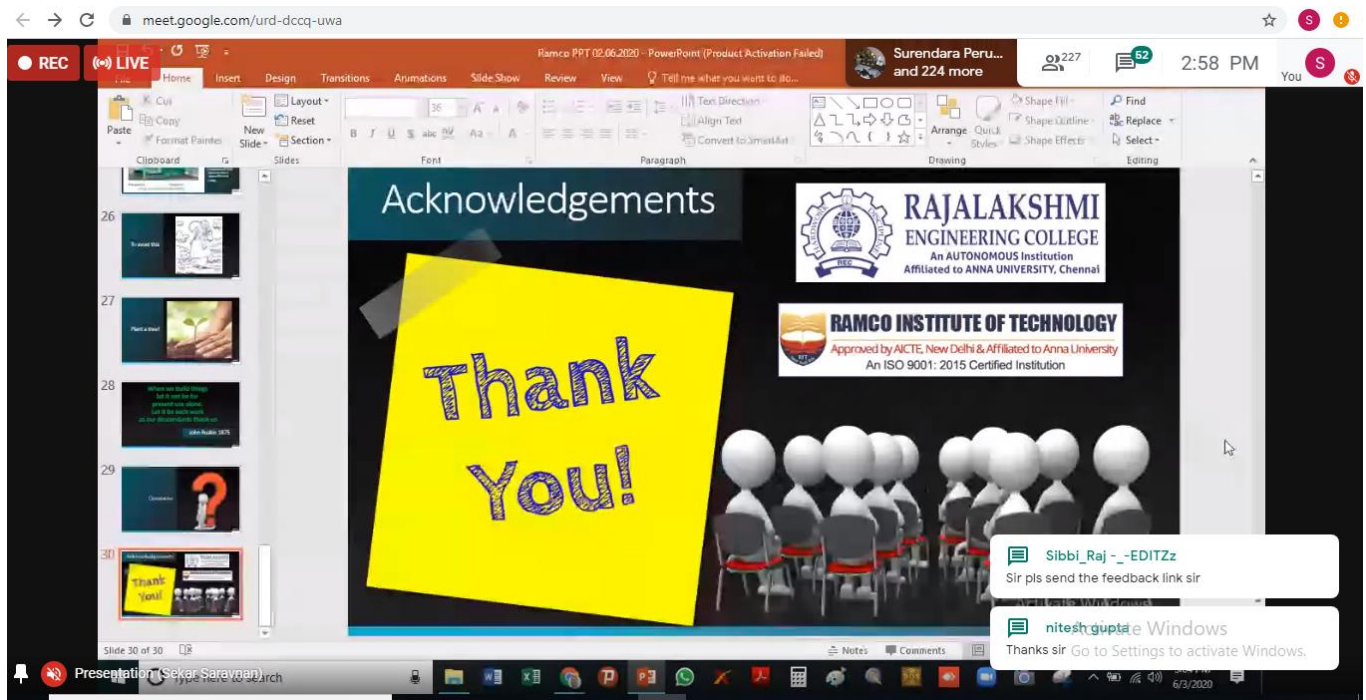
The resource person concluded the session with the applications of vapour absorption heat transformers in various industries. The applications include,

- Power plant
- Desalination
- Spray drying unit
- Cogeneration plant
- Alcohol distillation plant



Screenshot of applications of VAHT

Later the resource person answered the queries asked by the participants for last 30 minutes. Participants expressed their gratitude through chat box. Finally the resource person acknowledged Rajalakshmi Engineering College and Ramco Institute of Technology for the webinar.



Screenshot of acknowledgement

Prepared by:
Mr. N.L. Sujin, AP/Mechanical