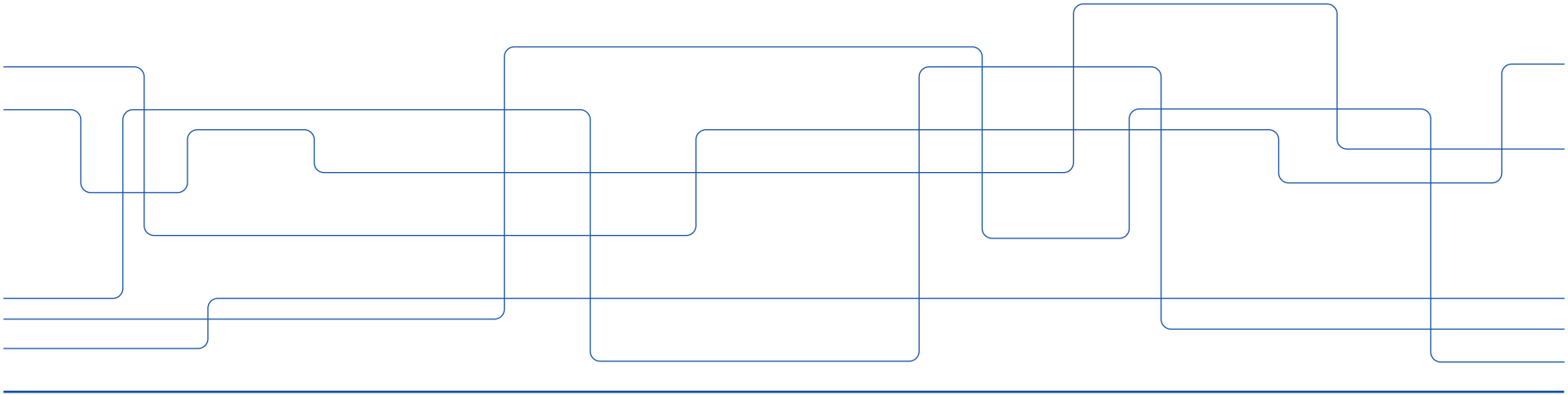
KTH ROYAL INSTITUTE
OF TECHNOLOGY

# Editors network session #11

2022-11-16

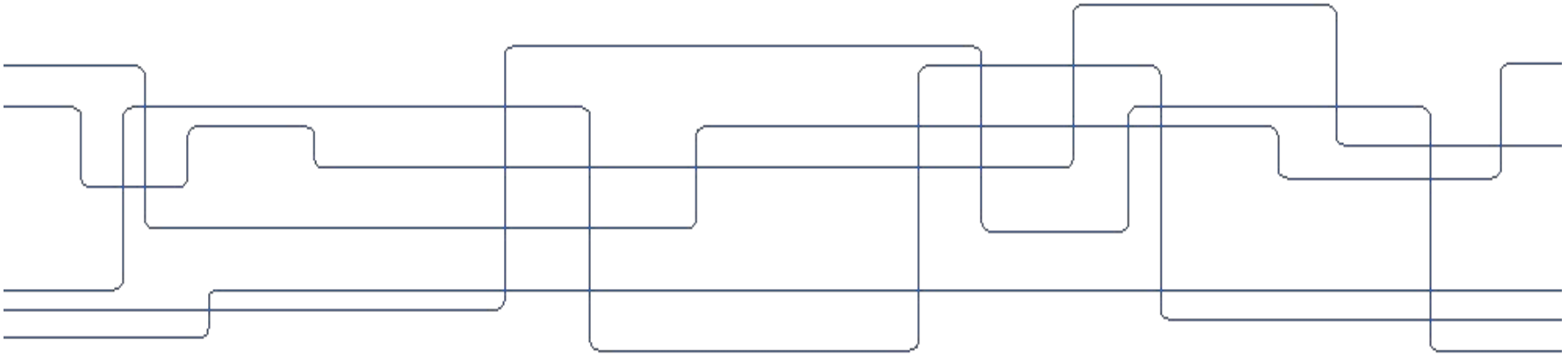


# Agenda

1. Language – Viggo Kann and Susanna Zeitler Lyne from KTH's Language committee.
2. Fika + Discussion about language, target groups and how to write for different audience.
3. More about texts online, by Ulrika
4. Information from Ulrika about web at KTH.
5. 14:30-15:00 Co-work: Stay and do your web tasks together

# Språket vid KTH - The Language at KTH

Viggo Kann, Professor of Computer Science
Susanna Zeitler Lyne, Lecturer in English
KTH:s språkkommitté, the KTH Language Committee



# KTH:s språkpolicy

Antogs av KTH:s styrelse 2010. Revideras inom kort.

Ska ge ökat *språkligt medvetande* hos studenter och personal.

Ska hjälpa KTH i strävan att utvecklas till ett *flerspråkigt svenskt och internationellt universitet*.

Created by Max Hancock from the Noun Project

# The KTH Language Policy

Adopted by the KTH Board in 2010. Will be revised soon

Should increase the *linguistic awareness* of students and staff.

Should be an aid in KTH's endeavor to develop into a *multi-lingual Swedish and international university*.

# KTH:s språkkommitté

Inrättades av rektor då policyn antogs.

- Stöder förverkligandet av policyn
- Ger råd och tips i språkliga frågor av generell art vid KTH
- Utvecklar den svensk-engelska KTH-ordboken

# The KTH Language Committee

Established by the president when the policy was adopted.

- Supports the realization of the policy
- Provides advice in linguistic matters of a general nature at KTH
- Develops the KTH Swedish-English dictionary of terminology

# Språkpolicyn i fyra ord

**Klarspråk**
- vårdat, enkelt och begripligt språk

**Tillgänglighet**
- tillgängligt för alla, lätt att hitta

**Flerspråkighet**
- språklig mångfald är en resurs att ta vara på

**Parallellspråkighet**
- svenska och engelska används sida vid sida

# The Language Policy summarized

**Clear language**
- literate, simple and understandable language

**Accessibility**
- accessible for all, easy to find

**Multilingualism**
- linguistic diversity is a valued resource

**Parallel language**
- Swedish and English used side by side

C
A
M
P

Created by Max Hancock from the Noun Project

# Riktlinje: Tio ställningstaganden och handlingsplaner

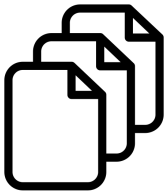
**(Tre utdrag)**

**3. Hög språklig kvalitet i KTH:s kommunikation**
Alla dokument som skrivs på KTH ska hålla *hög språklig kvalitet*, använda en *enhetlig terminologi* samt leva upp till kraven på *klarspråk* och *tillgänglighet*.

# Guideline: Ten standpoints and action plans

**(Three extracts)**

**3. High linguistic quality in KTH's communication**
All documents written at KTH must maintain a *high linguistic quality*, use *uniform terminology* and live up to the requirements for *clear language* and *accessibility*.



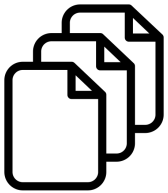
Created by prakruti
from the Noun Project

# Riktlinje

**7. Administrativt språk**
KTH:s officiella språk är *svenska*.
Alla beslut och andra officiella dokument ska finnas på *svenska*.
*Engelska översättningar* ska finnas av alla viktiga dokument, inklusive beslut och KTH:s externkommunikation (t. ex. officiella webbsidor).

# Guideline

**7. Administrative language**
KTH's official language is *Swedish*.
All decisions and other official documents must be in *Swedish*.
*English translations* must be available of all important documents, including decisions and KTH's external communications (e.g. official websites).



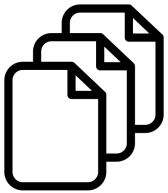
Created by prakruti
from the Noun Project

# Riktlinje

**9. Språk vid kunskapsspridning och extern kommunikation**
KTH:s kontakter med det omgivande samhället ska ske på *klart, enkelt och begripligt* språk.
KTH:s val av språk i sitt arbete ska relateras till den *målgrupp som avses*.
KTH:s webbplatser ska tillhandahålla grundläggande information på såväl *svenska* som *engelska* och därtill gärna på *andra språk*.

# Guideline

**9. Language in knowledge dissemination and external communication**
KTH's contacts with the surrounding society must take place in *clear, simple and comprehensible* language.
KTH's choice of language in its work must be related to the *intended target group*.
KTH's websites must provide basic information in both *Swedish* and *English*, and preferably in *other languages*.



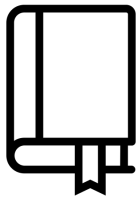
Created by prakruti
from the Noun Project

# Resurser

På språkkommitténs gruppwebb finns:

KTH:s svensk-engelska ordbok

Stilguider, lexikon och språkgranskningsverktyg



Created by Oriol Sallés from the Noun Project

# Resources

At the group web of the KTH language committee you find:

The KTH Swedish-English dictionary

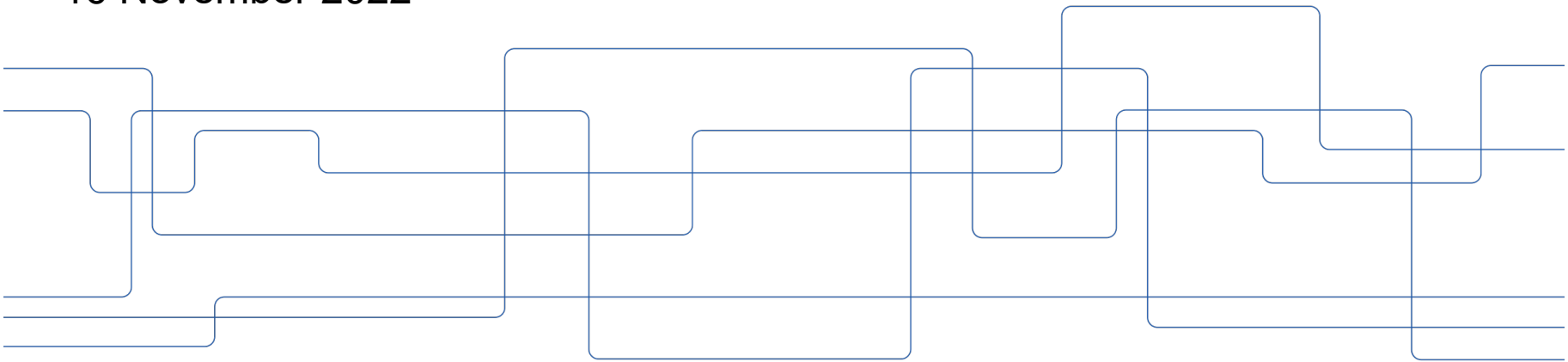
Style guides, dictionaries and language checking tools

# Writing for the Web

ITM Web Editors' Meeting

16 November 2022

Susanna Lyne, suslyne@kth.se



# Resources

## *Svenska skrivregler*

*available as an e-book at KTHB:* *https://onlinebok.liber.se/web-reader/#/document/d004e155-c08a-398f-fae9-affff60906a7/article/1*

## *Myndigheternas skrivregler (Institutet för språk och folkminnen)*

https://www.isof.se/stod-och-sprakrad/vagledningar/myndigheternas-skrivregler

## KTH writing guides (intra.kth.se)

https://intra.kth.se/administration/kommunikation/webb/skapa-innehall/skriva-for-webben-1.878378

https://intra.kth.se/administration/kommunikation/skrivregler-vid-kth/skrivregler-for-kth-1.461095

## The KTH Guide to scientific writing in English: www.kth.se/writingguide

## ***Book:* *Klarspråk på nätet – webbredaktörens skrivhandbok***

*by Karin Guldbrand and Helena Englund Hjalmarsson* (available at KTHB)

# Why and for whom?

- Who is the reader?
  - Other researchers (competitors or collaborators?)
  - Publishers?
  - Students?
  - People interested in a course?
    - Background at KTH?
    - External?

- Why are they there?
- Why do you want them to read the text?

# Readers' background knowledge?

What does this abbreviation stand for?

## HITS renewed for phase two

*Published Nov 02, 2022*

Last week the project kicked off its second phase. HITS 2024 now aims to continue to build knowledge and experience needed to develop the freight transportation system of the future.

Read the article

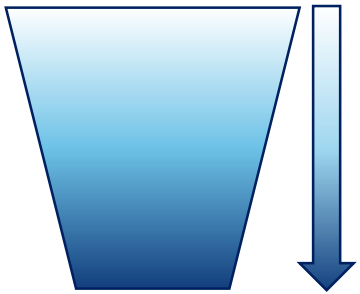
"the project" indicates that the reader knows what the project is

# Scientific writing and writing about science

- Scientific writing is writing *by scientists, for other scientists*
  - *Terminology*
  - *Abbreviations*
  - *Sentence structure*

- Science writing is text about science for non-experts
- Science writing *on the web* requires adaptation for *both* experts and non-experts
  - Describing complex procedures
  - Explaining how your research is applicable in the ”real world”
  - The reader as your starting-point

## An Introduction to a scientific article



General information

Background

Some previous research

A research gap (”However…”)

More background

Another research gap

Therefore, this study aims to…

## Project description on a website?

”It is well known that…”

In this project, we look at…

Problem

Method

Different purposes and readers requires different structures/focus.

# Make the language more personal

**Passive, non-personal**

By **analysis of** available scientific literature, relations between the minimum safely detectable crack size and the component thickness **have been set up**.

**More suitable for the web?**

**By analyzing the available literature, we** have been able to determine relations between the minimum safely detectable crack size.

Show confidence and ’take control’ by using *we*

# Make the language more personal

**Passive = clear who did it, and when?**

By **analysis of** available scientific literature, relations between the minimum safely detectable crack size and the component thickness **have been set up**.

**Clearer?**

**In a first step of the project**, relations between X and Y have been determined.

# Reader-friendly language 1

Subject and verb at the beginning of the sentence – explanation later.

**Less reader-friendly**

With the aim of understanding the impact of future climate change on long-term wind power operation in the Swedish power system, which is dominated by variable renewable energy sources, this project presents three models for wind power development.

**More reader-friendly**

This project presents three models for wind power development **with the aim of understanding the impact of future climate change on power operation.** Currently, the Swedish power system is dominated by…

# Reader-friendly language 2

”De-clutter” **noun strings**

**Hard to read**

- Underground mine worker safety protection procedures development
- Draft laboratory animal rights protection regulations
- National Highway Traffic Safety Administration’s automobile seat belt interlock rule

**Easier to read**

- **Developing** procedures **to** protect **the** safety **of** worker**s in** underground mine**s**
- Draft regulations **to protect** the rights **of** laboratory animals
- The National Highway Traffic Safety Administration’s interlock rule **for** automobile seat belts

# Reader-friendly structure: Informative headings

**”Our project”**

- Needs context to make sense
- Scrolling on a small screen? Easy to lose track

**→”Boosting X for the purpose of Y”**

**“Research in technology and science education and teaching from pre-school to high school”**

- Too long?
- Hard to “process” if seen on a small screen?
- Better?

**→ “Improving? (Exploring?) the school subject of technology and science”**

# Keep it short and sweet

- Words that can be omitted?
- Sentences that can be omitted?
- → Keep **audience and purpose** in mind!


# The beauty of lists

With a list, the information is…

- easy to find
- easy to process
- easy to remember

# Can this be written as a list?

The project work can be divided into phases. The first will be to quantify the microstructural decay found in the rolling contact fatigue experiments performed at Ovako. In parallel the literature will be searched for works on thermomechanical decay of martensitic and bainitic high strength steels. The third project phase aims at reproducing the decayed microstructure using independent loadings for specimens with homogeneous and macroscale material volumes. The forth phase comprises fatigue experiments on specimens with decayed microstructure. Micromechanical fatigue testing on the samples extracted from the decayed microstructure would be the next phase for detecting local strain-microstructure evolution. Finally, the local stress and strain distribution in the decayed and fatigue tested microstructure can be simulated using a grain structure and crystal plasticity models.

# Can this be written as a list?

The project work can be divided into **six** phases:

1. The first will be to quantify the microstructural decay found in the rolling contact fatigue experiments performed at Ovako.
2. Searching the literature for works on thermomechanical decay of martensitic and bainitic high strength steels
3. This phase aims at reproducing the decayed microstructure using independent loadings for specimens with homogeneous and macroscale material volumes.
4. Fatigue experiments on specimens with decayed microstructure.
5. Testing micromechanical fatigue on the samples extracted from the decayed microstructure would be the next phase in order to detect local strain-microstructure evolution
6. Finally, the local stress and strain distribution in the decayed and fatigue tested microstructure can be simulated using a grain structure and crystal plasticity models.

Better, but… lists should always have *parallel grammatical structure*

# Parallel structures!

The project work **is** divided into **six** phases:

1. Quantifying the microstructural decay found in the rolling contact fatigue experiments performed at Ovako.
2. Searching the literature for works on thermomechanical decay of martensitic and bainitic high strength steels
3. Reproducing the decayed microstructure using independent loadings for specimens with homogeneous and macroscale material volumes.
4. Performing fatigue experiments on specimens with decayed microstructure.
5. Testing micromechanical fatigue on the samples extracted from the decayed microstructure in order to detect local strain-microstructure evolution
6. Simulating the local stress and strain distribution in the decayed and fatigue tested microstructure, using a grain structure and crystal plasticity models.

All items on the list begin with the same grammatical form (*ing*-form)

# Writing instructions

- Course websites and Canvas
- Reader's perspective
- Understand the visitor's *questions*
  - *Whom to contact?*
  - *Email address?*
  - *Schedule?*
  - *How can I apply or cancel my application?*

- Understand *how* the student finds info – should the information go somewhere else?

# Proofread before publishing!

- …or check what it looks like right after publishing
- Ask someone to read
- Print it out, pen in hand!
- Proofread for consistency
  - E.g. How to write the name KTH and the schools
- Pay attention to detail for a professional impression
  - Dashes or hyphens?

    1–11 May

    technology- and engineering-related research
  - How numbers are written

    23,600

    23 600
  - Capitalisation, e.g. for specific terminology

# The genitive

The manager's permission → chefens godkännande

The project's success → projektets framgång

Avoid genitive -s with plurals:

a driver's behavior OK, but avoid *drivers' behavior,*

Better to use a noun: driver behavior

*Projects' outcomes → project outcomes, the outcomes of the project*

*Its* or *it's*?

1. *Do you ever choose to write in only English or Swedish? Why?*

2. *If you are not bilingual: How do you make translations?*

3. *Research publication vs website content – is there a difference in phrasing and tonality?*

Discuss 2 or 3 in groups

# A perspective of advanced design, monitoring, development and validation of novel high performance materials and components applied to a real industrial case

## A workshop by HIPERMAT

Developing longer-lasting materials and components that withstand high temperatures and thermal cycles is necessary to promote less a resource-consuming manufacturing industry. In this hybrid workshop, HIPERMAT project members will share latest research and innovation regarding the new materials and technologies that are named to transform current industrial reality.

**Time:** Wed 2022-12-14 13.00 - 16.00

**Location:** Online and in room M131, Brinellvägen 23, Stockholm.

**Language:** English

**Contact:**

Applied Thermodynamics and Refrigeration

About the division
Research areas
Projects
Master thesis
Publications
News
Events
Contact and staff

# Distributed Cold Storages in District Cooling

The project "Distributed Cold Storages in District Cooling" is a work package (WP 2.3) in the program "Thermal energy storage- the solution for a flexible energy system" coordinated by Energiforsk.

**Funded by:** Swedish Energy Agency
**Time period:** 2018-04-01 – 2021-03-31
**Project partners:** KTH, Norrenergi AB, Energiforsk

## Background

The project "Distributed Cold Storages in District Cooling" is a work package (WP 2.3) in the program "Thermal energy storage- the solution for a flexible energy system" coordinated by Energiforsk.

District cooling (DC) is an efficient end environmental friendly way of providing cooling particularly for densely populated regions or close-neighborhoods. To lower the installation costs of a DC system yet still to cover the peak cooling demands, cold storage is sought for. Despite experiencing a northern climate, Sweden also has a considerable cooling demand throughout the year, particularly from industrial, service and commercial sectors. Besides, with climate change now a reality, these cooling demands are on the rise, while residential cooling in summer may also come as a demand eventually. In this context, Swedish DC systems are anticipating cooling supply expansions and here cost-effectiveness is the key, where cold storages could play a deterministic role.

## Aim and objectives

In this context, the aim of this project is to map the current context of DC and cold storage in Sweden, and by means of a case study system (namely of Norrenergi AB's DC system), investigate the opportunities in cold storage, particularly at distributed locations, to cost-effectively expand the cold supplies. To achieve this, the objectives are:

- map the current context of distributed and centralized cold storage in DC in Sweden
- conduct a techno-economic performance evaluation on the chosen case study (Norrenergi AB's DC) system, for both distributed and centralized cold storage alternatives and their operational strategies optimization
- thereby, conduct a cost-benefits analysis of the analyzed cold storage alternatives, concerning both the DC and energy system as a whole.
- thereby also conduct a total costs comparison of the chosen cold storage alternative with other typical cooling capacity increasing means
- Evaluation or comparison of optimal operating strategies for alternative cold storages (e.g. cold water accumulator tanks, phase change materials, and underground storages) with regard to technical and economic performance and impact on operation
- Present key specific as well as general conclusions as related to DC supply optimization and extension and the role of cold storage in that

## Outcomes

- Successful progress presentation at all the bi-annual progress workshops organized by Energiforsk
- The completion of 02 master's thesis projects with final reports published open access in KTH DiVA
- The completion of 01 master's level student project and report (MJ 2409 Applied Energy Technology, Project Course, 9.0 credits in 2018)
- 03 conference publications with oral presentation of the results (Eurotherm Seminar n°112- 2018, Enerstock 2021 and DHC2021)
- A final report on WP 2.3 published with open access in Energiforsk web
- Fruitful collaboration on a peripheral work package 2.1 (Techno-economic comparison between different techniques for thermal storage in regional energy systems) with

**Unit of Properties**

Unit of Properties
Mechanical Metallurgy
Applied Material Physics
Materials Technology
Measurements of Properties
Current projects
Publications
Contact and staff

# 3D Printing of novel Mg alloys aiming at production of patient-specific biodegradable implants

## Background and challenges

In recent years, application of Mg alloys as biodegradable implants has gained substantial attention. Unlike titanium and stainless steel implants, Mg alloys can be gradually degraded in the human body, eliminating the need for a removal surgery. Good mechanical properties and degradation characteristics also make them superior to common polymers used in the human body. In the last decade, many magnesium alloys have been developed targeting biomedical applications ranging from maxillofacial reconstruction, to pediatric orthopedics, vascular stents, surgical clips, screws, plates, and bone-interfacing. Although magnesium has many advantages as hard tissue implant and tissue engineering scaffold material, application of magnesium is still limited in clinical applications due to its poor formability and rapid degradation in a high chloride environment and hydrogen evolution. Mechanical properties of the Mg alloys are of great importance since the designed Mg alloys should maintain their integrity and strength during the degradation process. Previous studies have investigated the effect of alloying, grain size and texture on the mechanical properties of the Mg alloys. As a novel alloying system, rare-earth (RE) containing Mg alloys have shown promising mechanical and corrosion properties through grain refinement and texture modification as well as excellent biodegradation properties. However, the use of these alloys as biodegradable implants is a new application which requires further study, especially from the alloy design approach.

Despite the benefits of the Mg alloys, their poor formability at room temperature has restricted their application by complicating their manufacturing. On the one hand, conventional manufacturing processes, such as rolling and extrusion, only offer products with simple geometrical shapes. Therefore, developing a manufacturing method for production of products with complex geometries is crucial. In addition, as the time is of crucial importance in medical treatments, development of a method for rapid production of products customized based on the patient status is of great importance. Additive manufacturing (AM) or 3D printing offers a mean for rapid production of complex customized products through a layer-by-layer production technique. However, employing laser melting for Mg alloys is faced with difficulties, due to intrinsic properties of Mg including high oxidation at elevated temperature and low boiling temperature. Therefore, the present production methods must be optimized for the Mg alloys to get the best results.

## Purpose

The main objective of the present project is to design novel magnesium (Mg) alloys as well as to optimize the state of the art AM processes for fast production of Mg alloys with excellent mechanical properties. In addition, considering the extensive application of Mg alloys, the secondary objective is to provide a connection between material processing and biomedical properties through a multidisciplinary study, to develop new materials for production of biodegradable implants with enhanced properties.

## Project plan

The project is divided into two phases, where phase 1 includes alloy development, optimization of the additive manufacturing process, and microstructural and mechanical characterization of the developed material. In this phase, thermodynamic calculations are

Click here to read more

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*Publicerad 2022-10-27*

Dr Graham har 20 års yrkeserfarenhet av akademisk forskning och reformering av högre utbildning och har arbetat med universitet, yrkesorganisationer, industri och regeringar över hela världen. Här är hennes senaste rapport med en fallstudie från KTH.

Läs mer på den engelska sidan här

# Miljöskatter får företag att investera i forskning

*Christian Thomann, universitetslektor och en av forskarna bakom studien.*

*Publicerad 2022-10-24*

Företag med utsläpp som drabbas av miljöskatter investerar mer i forskning och utveckling. Det visar en internationell studie som två Indekforskare ligger bakom.

Ambitiösa miljömål kräver verktyg för att samhället ska ställa om. Miljöskatter är ett sådant instrument som genom prismekanismer ska få företag att släppa ut mindre genom att gå över till renare produktionsteknik. Skatterna handlar inte bara om att få tillskott till statskassan utan motivera företag att bli av med kostnaderna för skatterna, och samhället får miljöförbättringar på köpet.

– Det är en win-win situation. Och nu ser vi att det fungerar. De företag som drabbas av miljöskatter investerar i kunskap som ska få ner skatterna, säger Christian Thomann, en av de två forskare på Indek som varit med i en internationell studie som nyligen publicerats i prestigefyllda The Review of Financial Studies.

De som har mest att vinna på att ta till sig extern kunskap och tekniskt kunnande är med stora utsläpp. Här handlar det om stora företag. Studien visar att de väljer att ta del av befintlig forskning för att minska utsläpp i stället för att själva ta fram innovationer.

– Det kan vara en cementtillverkare som anställer någon att implementera teknik sprungen ur den senaste forskningen till befintliga anläggningar. Men det kan också handla om samarbeten med universitet och högskolor eller forskningsinstitut som har tagit fram ny teknik eller att man anställer någon därifrån. Som forskare är det skoj att se att man tar del av forskningsresultat som är allmänt tillgängliga, säger Christian Thomann.

# Environmental taxes make companies invest in research

*Christian Thomann, associate professor and one of the researchers behind the study.*

*Published Oct 24, 2022*

Companies with emissions affected by environmental taxes invest more in research and development. This is shown in a new international study by two Indek researchers.

Ambitious environmental goals require tools for society to change. Environmental taxes are such an instrument. You want to encourage companies to emit less by switching to cleaner production technology through price mechanisms. The taxes are not only about adding to the treasury but motivating companies to get rid of the costs of the taxes. In return, society gets environmental improvements.

"It's a win-win situation. And now we know it works. The companies that are affected by environmental taxes invest in knowledge that will reduce the taxes," says Christian Thomann, one of the two researchers at Indek who participated in an international study recently published in the prestigious The Review of Financial Studies.

Those who have the most to gain from absorbing external knowledge and technical know-how are those with significant emissions. The study shows that they choose to assimilate existing research to reduce emissions instead of developing their own innovations.

"It could be a cement manufacturer who hires someone to implement technology stemming from the latest research into existing facilities. But the companies might also collaborate with universities or research institutes that have developed new technology or hire someone from there. As a researcher, it's satisfying to see that you take part in research results that are available," says Christian Thomann.

# Building heating solutions in China

Building heating solutions in China: a multi-criteria system analysis based on spatial data

**Funded by:**

China Scholarship Council (CSC file 201407930004)

STINT, Swedish Foundation for International Cooperation in Research and Higher Education

NSFC, National Scientific Foundation of China

**Time period:** 2018-2021

**Project members:**

Department of Energy Technology, KTH Royal Institute of Technology

Institute of Refrigeration and Cryogenics, SJTU Shanghai Jiao Tong University

## Background

Modern clean, accessible and affordable building space heating is a key towards future sustainable development of China. For a large country as China, it is impossible to recommend identical building space heating solution for everywhere. Therefore, this project aims at developing a systematic evaluation method to assist relative stakeholders decide at where and under what conditions to choose a certain building space heating solution.

The project innovatively integrate spatial data analysis with conventional building space heating and space cooling technologies by a systematic approach, so that large scale evaluations can be carried out for China. The evaluations are performed quantitatively through a number of key performance indicators, which can reflect the relative advantages and disadvantages of different building heating solutions when compared with each other. Stakeholders can benefit from such multi-criteria evaluation and policy makers can be inspired to think out of the box. The systematic approach is not confined to only understand the technology itself, but have a wider boundary to investigate different heat source, heat sink as well as energy system.

## Aim and objectives

The ultimate aim of the study is to provide a spatial data based holistic method, through which stakeholders can investigate building heating solutions' feasibility in various geographical locations of China. Then the stakeholders can benefit from the insights of the results, to compose wise policy decisions or make right choice of building heating solutions. The system analysis method and consequent model should be able to compare building heating solutions' adaptability from multi-criteria perspectives such as technical, economic, environmental, geographical, social and demographical point of view. By choosing a number of key performance indicators, the potential of a specific building heating solution can be quantitatively assessed.

## Outcomes

1. Comprehensive review of building heating status in China
2. A spatial data based system analysis method
3. Case studies comparing different building heating solutions in various cities across China using proposed method

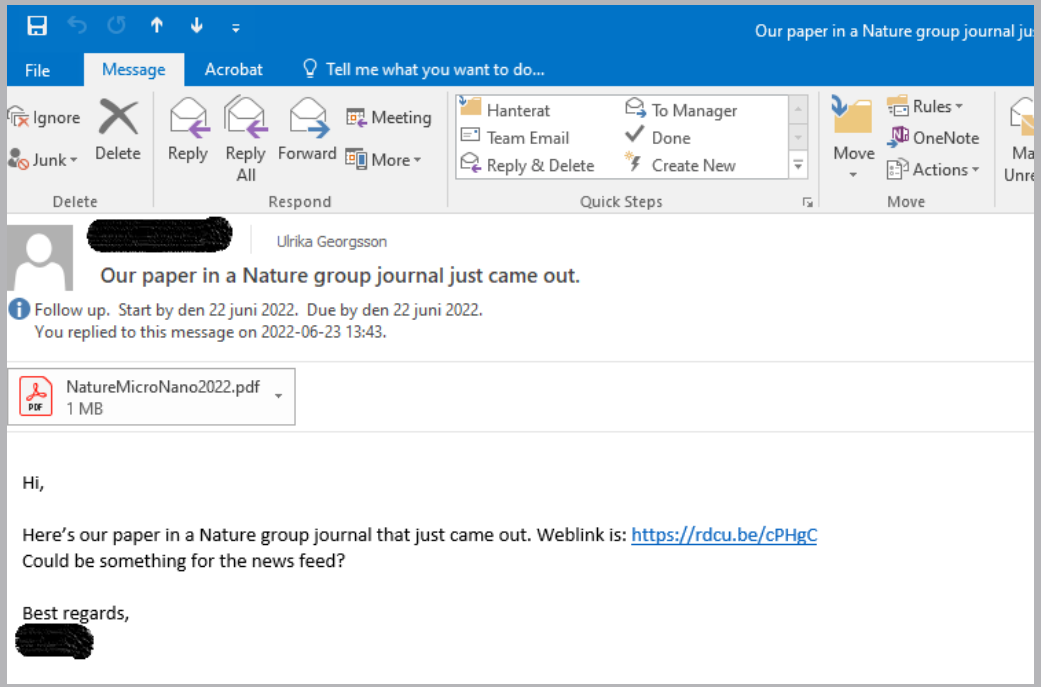
## Publications

All publications within the project can be found in Diva here.

# We had a lecture…

## Start to communicate your research – in 90 minutes

| | | | | |
|---|---|---|---|---|
| Why do I need this? | What are my options? | Communication basics | Excercise: Write a newsflash | How to start today? |


Our paper in a Nature group journal ju
File
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Tell me what you want to do...
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To Manager
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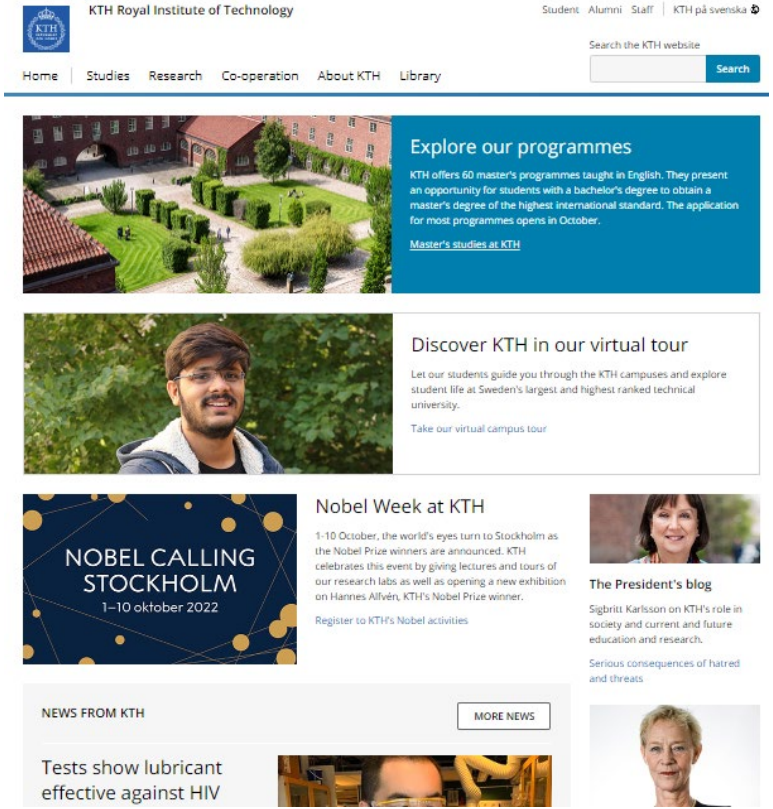
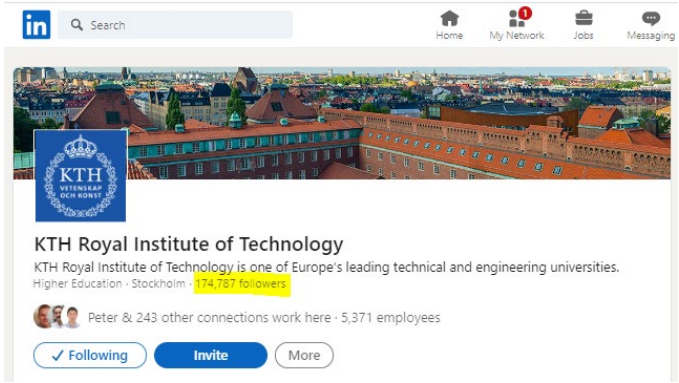
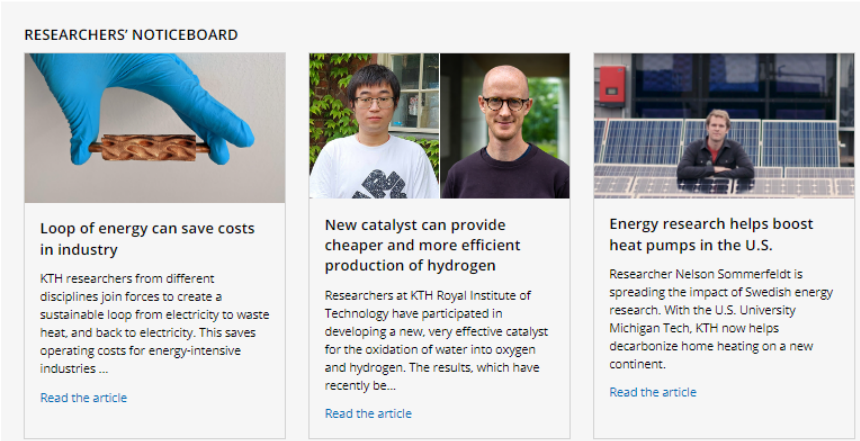
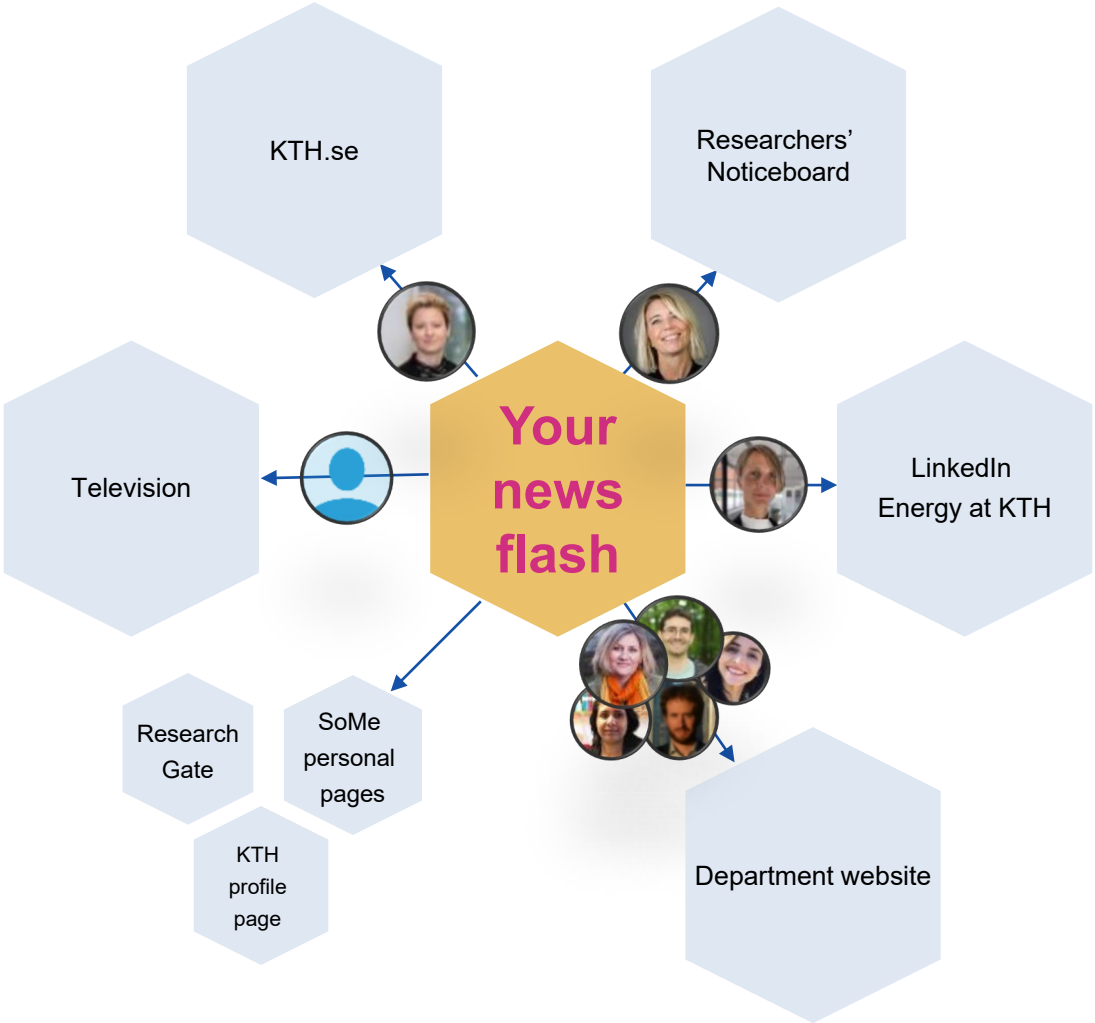
[redacted]
Ulrika Georgsson
Our paper in a Nature group journal just came out.
Follow up. Start by den 22 juni 2022. Due by den 22 juni 2022.
You replied to this message on 2022-06-23 13:43.
NatureMicroNano2022.pdf
1 MB
Hi,
Here's our paper in a Nature group journal that just came out. Weblink is: https://rdcu.be/cPHgC
Could be something for the news feed?
Best regards,
[redacted]

# How to communicate via KTH?

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Research Gate
SoMe personal pages
KTH profile page
Department website

## Minimerad smittrisk i framtidens byggnader

**KTH, Umeå Universitet, Lunds Universitet och Chalmers ska tillsammans kartlägga hur man designar byggnader med en hälsosam inomhusmiljö som minimerar risken att sprida smittsamma sjukdomar som Covid-19.**

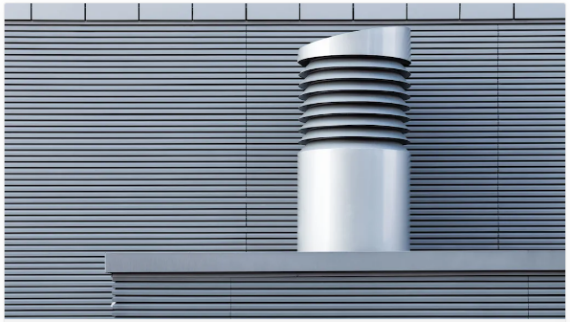
Projektet "Buildings Post Corona" ska arbeta fram hur byggnader bör vara konstruerade för att vara hållbara och ha en hälsosam inomhusluft med minimal risk för överföring luftburna sjukdomar.

- Hur Covid-19 sprids är något som forskare över hela världen arbetar med just nu. Smitta via luft har varit en avgörande komponent för många av de farsoter som utvecklats till pandemier såsom influensa, smittkoppor och nu Covid-19. Inomhusmiljön med sin ventilation, planlösning och hur vi beter oss, kopplat till smittspridning är ett komplext område, säger Jonas Arnund Vogel, föreståndare på Live-in Lab.

Genom den bredd av expertis som finns vid de fyra universiteten kommer projektet täcka in de perspektiv och metoder som behövs för att designa en god inomhusmiljö utifrån hållbarhet, energianvändning, hälsa och smittrisk. Projektet utförs i tätt samarbete med Boverket, Svensk

sverigesradio Start Nyheter Poddar & program Direkt Min sida Mer

Vetenskapsradion Nyheter Start Lyssna på nyheterna Program Klimatet Den fossila



På KTH ska man se hur man kan designa en byggnad så att den minimerar risken att sprida sjukdomar – som till exempel covid-19. Foto: Unsplash

ARKITEKTUR

## Framtida byggnader ska minska risk för smittspridning

2:08 min Min sida Dela

Publicerat måndag 27 december 2021 kl 11.03

- På KTH ska man se hur man kan designa en byggnad så att den minimerar risken att sprida sjukdomar – som till exempel covid-19.
- "Mycket fokus hamnar på ventilationssystem", berättar Jonas Anund Vogel, föreståndare för KTH Live-in-Lab .

svt NYHETER Nyheter Lokalt Sport SVT Play Barn

/ INRIKES


Studentlägenheten vid KTH ser ut som vilken lägenhet som helst, men det är också ett labb. Foto: Michael Jansson/SVT

## Nytt forskningsprojekt ska virussäkra hus

UPPDATERAD 28 DECEMBER 2021 PUBLICERAD 28 DECEMBER 2021

**Att luftburna sjukdomar sprids lättare inomhus än utomhus är känt för de flesta. Nu vill forskare undersöka om det går att anpassa inomhusklimatet för att minimera den risken, bland annat genom att använda smart ventilation.**

Re: Do you have research news for the LinkedIn page Materials Science at KTH? - Message (Plain Text)

File | Message | Acrobat | Tell me what you want to do...

Ignore | Junk | Delete | Reply | Reply All | Forward | Delete | Respond | Hanterat | Team Email | Reply & Delete | To Manager | Done | Create New | Quick Steps | Move | Rules | OneNote | Actions | Move | Mark Unread | Categorize | Follow Up | Tags | Translate | Editing | Zoom | Zoom

[redacted] Ulrika Georgsson 2022-08

**Re: Do you have research news for the LinkedIn page Materials Science at KTH?**

You replied to this message on 2022-08-26 10:34.
We removed extra line breaks from this message.

Hi Ulrika,

I have a bit of news I would like to share. You can rephrase if you like, sorry I wrote it mostly in 1st person. All of the people in the post are available on LinkedIn to be tagged. Also, the company Freemelt that manufactures our 3D printer can be tagged. There is a link at the bottom with several photos of the component and some videos of the computer modelling.

"""

In the additive manufacturing group at MSE, we have successfully produced a prototype copper heat exchanger via electron beam powder bed fusion on our Freemelt ONE machine (Assoc. Prof. Greta Lindwall and Dr.
Ethan Sullivan). The particular lattice-like structure of the heat exchanger was designed by our collaborators in CBH (Prof. Christophe Duwig and Dr. Kai Zhang) and is optimized using their unique, in-house computational fluid dynamics (CFD) solver. With the production of the prototype, it will now be tested experimentally by Dr. Ali Najarnezhadmashhadi from the same group in CBH. The group also plans to print larger, practical prototype heat exchanger designs with the help of collaborator Dr. Sasan Dadbakhsh at IIP.

The end goal of our collaboration is to integrate the custom heat exchanger into a system filled with the reactive fluid for power production, that is, generating electricity from waste heat. The reactive fluid helps maintain high heat transfer capability across the short length of the heat exchanger and harvests a large amount of thermal energy from the hot source almost immediately in the form of chemical energy. As a result, chemical energy can then be released in the form of mechanical or electrical energy. The project aims to save operating costs for energy-intensive industries by creating a sustainable loop from electricity to waste heat back to electricity.

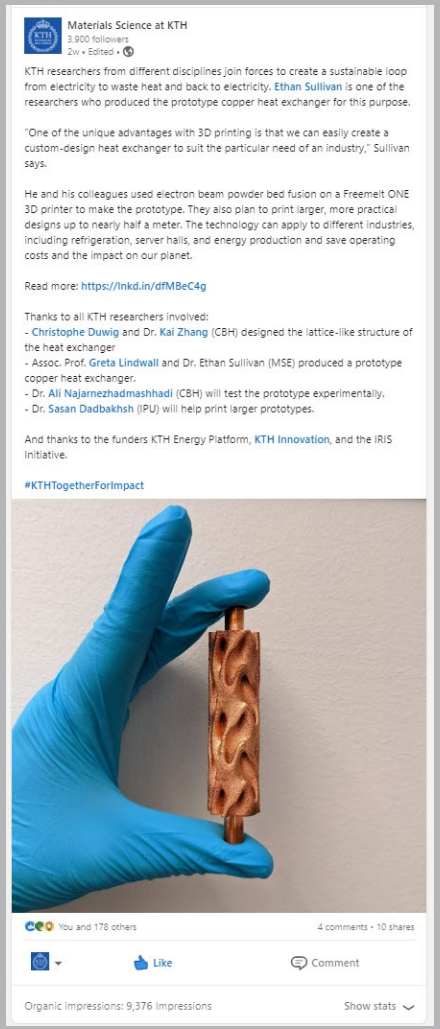
We would like to acknowledge the KTH Energy Platform, KTH Innovation, and the IRIS Initiative for funding of this project.

Pictures: Prototype copper heat exchanger additively manufactured by electron beam powder bed fusion.

avi videos: Computational fluid dynamics simulations illustrating the flow path and the change of reactive fluid's chemical status.

mp4 video: Film of the EPBF process using the Freemelt ONE at MSE

Videos and pictures:
https://kth-my.sharepoint.com/:f:/g/personal/ethans_ug_kth_se/ErfBzHiZGpxLuzdmp0S1rVIBkjDoLhP5Y7Oo1HkT8tz3rQ?e=7zKpmx



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# Loop of energy can save costs in industry

*The 3D printed heat exchanger prototype*

*Published Sep 08, 2022*

KTH researchers from different disciplines join forces to create a sustainable loop from electricity to waste heat, and back to electricity. This saves operating costs for energy-intensive industries and the impact on our planet.

The additive manufacturing group at the Department of Materials Science and Engineering (MSE), has produced a prototype copper heat exchanger via electron beam powder bed fusion on the Freemelt ONE 3D printer.

The particular lattice-like structure of the heat exchanger was designed by collaborators in the School of Engineering Sciences in Chemistry, Biotechnology and Health (KTH). To optimize the structure an in-house computational fluid dynamics (CFD) solver was used, a process of mathematically modeling a physical phenomenon involving fluid flow. With the production of the prototype, it will now be tested experimentally.

The group also plans to print larger, more practical prototype heat exchanger designs with the help of the Department of Production Engineering (IPU).

The commercial version of a future heat exchanger could range from the size of the first prototype all the way up to dimensions of nearly half a meter, which is the current maximum size for this particular printing process.

"The end goal is to integrate the custom heat exchanger into a system filled with the reactive fluid for power production, that is, generating electricity from waste heat", says Ethan Sullivan, researcher at MSE.

The reactive fluid helps maintain high heat transfer capability across the short length of the heat exchanger and harvests a large amount of thermal energy from the hot source almost immediately in the form of chemical energy.

As a result, chemical energy can then be released in the form of mechanical or electrical energy.

*The 3D-printed heat exchanger*

"The project aims to save operating costs for energy-intensive industries by creating a sustainable loop from electricity to waste heat back to electricity", Sullivan says.

The technology can be applicable to many different industries, including refrigeration, server halls, and energy production.

"One of the unique advantages that 3D printing gives us is that we can easily and quickly create a custom-design heat exchanger to suit the particular need of an industry."

## About the project

Funders of the project are KTH Energy Platform, KTH Innovation, and the IRIS initiative.

### Researchers involved in the project:

- Prof. Christophe Duwig and Dr. Kai Zhang (CBH) designed the lattice-like structure of the heat exchanger

# Hands-on – How do you start to think communication?

1. Find your target group
2. Where are they (channel)?
3. What do you want to say and how?

# How do you say it?

1. **Problem**
   (What's the problem you want to solve?)

- **Solution**
  (What is your solution?)

- **Results**
  (How does this improve anything - and for whom?)

# The newsflash!

## The problem you want to solve?

Today it takes a long time to identify the cause of chest pain for patients seeking medical care at emergencies. The machines needed for diagnosis are large, expensive and built-in the rooms

## Your solution?

A small, flexible portable gamma camera can quickly and easily check the oxygen supply in the heart and can rule out/confirm heart failure.

## The result?

Patients with chest pain that's not related to heart failure can go home instead of being hospitalized.

The equipment can easily be brought to the patient which means shorter waiting time for patients. And in the long run: Lower healthcare costs.

## Hard core facts

Involved researchers, contacts, funding

# There are other news as well

- Awards
- Cooperations
- Events
- Conferences
- Job ads
- Publications
- New project
- A new colleague

Templates on internal EGI pages

1. Write a "newsflash" / mini-abstract
2. Send to infomaster@itm.kth.se and your local web editor
3. Update your KTH profile page
4. Post it on your social media

# Want to learn more?

## Guides

- Communications at ITM
- Share your research in social media
- Tips for your profile page

## Individual courses

- Communication course in Canvas (for free)
- PhD courses in communication

## Workshops for groups

- Get started with research communications (for free)
- LinkedIn by ITM communications (for free)
- Presentation skills (SEK 3000) by Language and communication

# Web information

- KTH will buy a new CMS. 2023-2027
- Next year Polopoly will get a majour upgrade.
- Matomo analytics tool – first for webmasters. In Dec recorded training will be available. If you want access, let me know.
- Reminder – yearly check of your pages.

# Web information

- KTH’s Visual idendity will get an update early 2023.
- Web related requests (new web sites) – contact Ulrika.
- Alexandra will present a suggestion for development of the tag function.

# Tack för att ni deltog!

**Ulrika Georgsson**
Communications Officer &
Coordinator of the ITM
School's websites

ulrikage@kth.se
087907635
Profile