

SEARCHING, PROCESSING AND REVIEWING OF SCIENTIFIC LITERATURE

Introduction Master Thesis

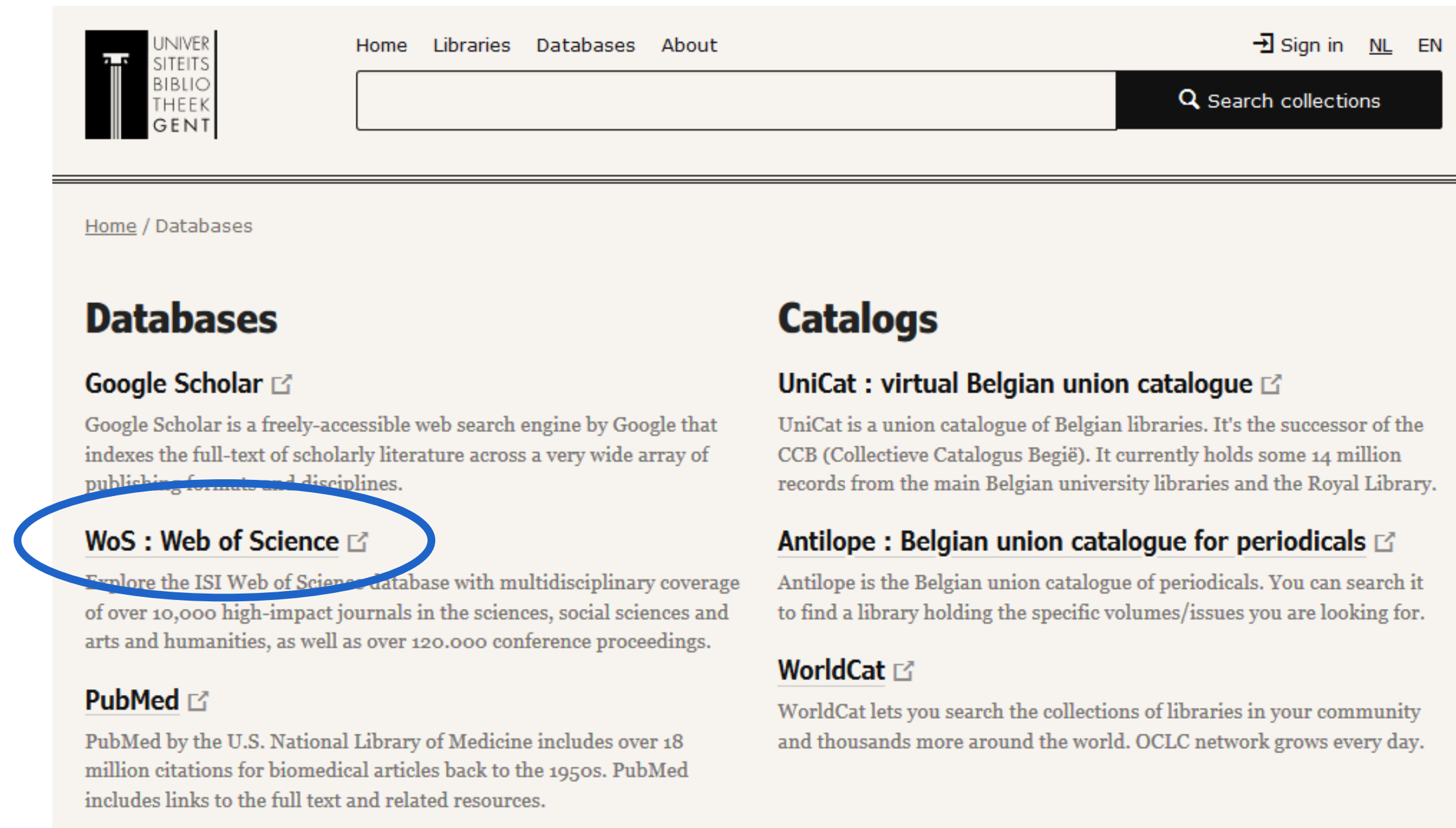
1) SEARCHING

SOURCES

- Journals
- Conferences
- Patents
- Technical websites
- Standards
- Master's and PhD theses

BROWSING SCIENTIFIC LITERATURE (1)

- Through <http://lib.ugent.be/en/databases>
- Databases
 - **Web of science**



The screenshot shows the 'Databases' page of the Ghent University Libraries website. The page has a header with the university logo, navigation links (Home, Libraries, Databases, About), a search bar, and language options (NL, EN). The main content is divided into two columns: 'Databases' and 'Catalogs'. Under 'Databases', there are links to Google Scholar, WoS : Web of Science (circled in blue), and PubMed. Under 'Catalogs', there are links to UniCat and Antilope. Each link is accompanied by a brief description of the resource.

Home / Databases

Databases

Google Scholar [↗](#)
Google Scholar is a freely-accessible web search engine by Google that indexes the full-text of scholarly literature across a very wide array of publishing formats and disciplines.

WoS : Web of Science [↗](#)
Explore the ISI Web of Science database with multidisciplinary coverage of over 10,000 high-impact journals in the sciences, social sciences and arts and humanities, as well as over 120.000 conference proceedings.

PubMed [↗](#)
PubMed by the U.S. National Library of Medicine includes over 18 million citations for biomedical articles back to the 1950s. PubMed includes links to the full text and related resources.

Catalogs

UniCat : virtual Belgian union catalogue [↗](#)
UniCat is a union catalogue of Belgian libraries. It's the successor of the CCB (Collectieve Catalogus Begië). It currently holds some 14 million records from the main Belgian university libraries and the Royal Library.

Antilope : Belgian union catalogue for periodicals [↗](#)
Antilope is the Belgian union catalogue of periodicals. You can search it to find a library holding the specific volumes/issues you are looking for.

WorldCat [↗](#)
WorldCat lets you search the collections of libraries in your community and thousands more around the world. OCLC network grows every day.

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Flow regime based heat transfer correlation for R245fa in a 3 mm tube

Marijn Billiet (UGent) , Bernd Ameel (UGent) , Romain Charnay, Rémi Revellin and Michel De Paepe (UGent)
(2018) INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER. 117. p.1304-1311

Author

Marijn Billiet (UGent) , Bernd Ameel (UGent) , Romain Charnay, Rémi Revellin and Michel De Paepe (UGent)

Organization

Department of Flow, heat and combustion mechanics

Abstract

241 heat transfer measurements for R254fa were conducted. The heat transfer coefficient was determined for a smooth stainless steel tube with an inner tube diameter of 3 mm. The experiments were conducted for five mass fluxes (100, 300, 500, 700 and 1000 kg/(m² s)), three heat fluxes (10, 30 and 50 kW/m²) and at three saturation temperatures (40 °C, 70 °C and 125 °C). The experiments were used to determine the influence of the saturation temperature, mass flux, heat flux, vapour quality and flow regime on the heat transfer coefficient. At a low saturation temperature, the heat transfer coefficient increases with an increasing mass flux. However, at a high saturation temperature the heat transfer coefficient decreases with an increasing mass flux. Furthermore, the heat transfer coefficient increases with increasing vapour quality at a low saturation temperature. On the contrary, the heat transfer coefficient decreases at higher saturation temperatures. Due to the fact that most heat transfer models found in literature are developed for low saturation temperatures and one flow regime, the heat transfer coefficients predicted by the existing models do not comply very well with the experimental data. Thus, a new heat transfer correlation for R254fa was proposed. The new correlation has a Mean Absolute Error of 11.7% for the experimental data of a tube with an inner tube diameter of 3 mm. Finally, this new correlation was also verified with R245fa datasets of other authors.

Keywords

two-phase, refrigerant, heat transfer measurement

Subject

Technology and Engineering

Year

2018

Publication type

Journal Article (Original Article)

Publication status

published

Journal title

INTERNATIONAL JOURNAL OF HEAT AND MASS TRANSFER

Int. J. Heat Mass Transf.

ISSN

0017-9310

1879-2189

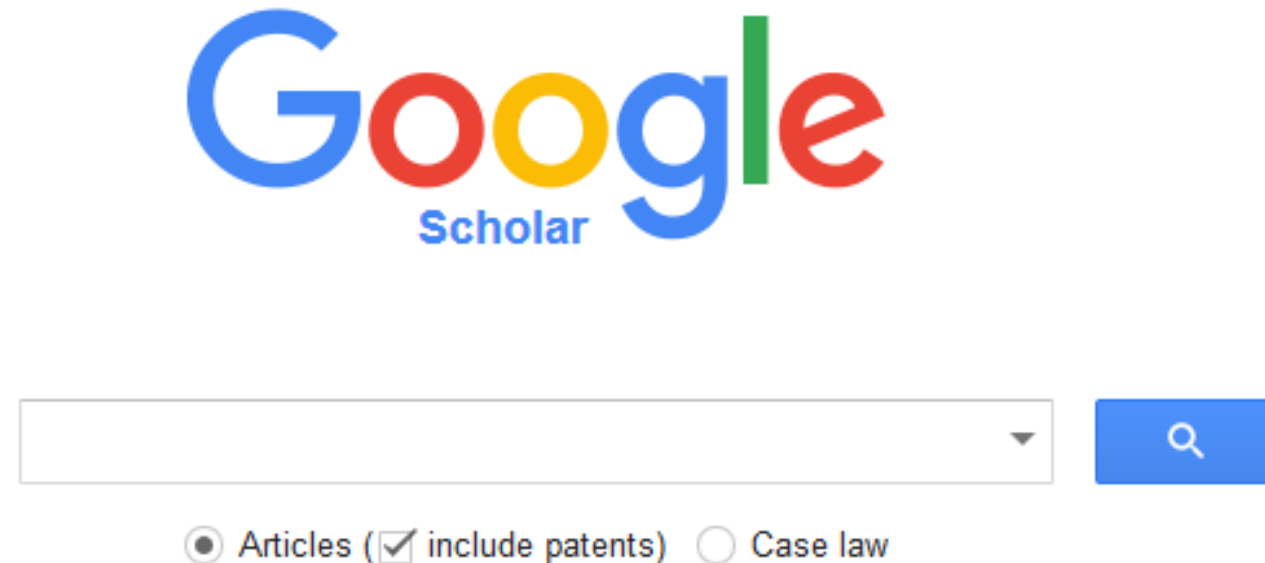
Volume

117

Pages

BROWSING SCIENTIFIC LITERATURE (2)

- Databases
 - Web of science
 - **Google Scholar:** searches in journal papers, patents, theses, conference proceedings



Articles

Case law

My library

Analysis of anisotropy and strain rate sensitivity of open-cell metal foamM Vesenjak, C Veyhl, T Fiedler - *Materials Science and Engineering: A*, 2012 - Elsevier

This paper addresses numerical and experimental analysis of the m. pore@ aluminium **foam**. Numerical models are based on computed tomography data in order to capture the complex material meso-structure. Uni-axial experimental tests were performed for quasi-static ...

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Any time

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Since 2012

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Strong wall and transverse size effects on pressure drop of flow through open-cell metal foamN Dukhan, M Ali - *International Journal of Thermal Sciences*, 2012 - Elsevier

In applications where a fluid flows through the **open** pores of **metal foam**, the **foam** is treated as an infinite porous medium for which the Darcy law and the Forchheimer equation are applied, in order to describe the pressure drop and to obtain the permeability and form ...

Cited by 26 Related articles All 5 versions Web of Science: 17 Cite Save

[PDF] researchgate.net
Fulltext@UGent

Sort by relevance

Sort by date

☒ include patents☒ include citations**Effect of frequency on heat transfer due to oscillating water flow in open-cell metal foam: An experimental study**N Dukhan, Ö Bağcı, LA Kavurmacioğlu - *Experimental Thermal and Fluid ...*, 2015 - Elsevier

Abstract Heat transfer due to oscillating water flow in **open-cell** aluminum-**foam** pipe subjected to constant wall heat flux was investigated experimentally. The **foam** had 20 pores per inch and a porosity of 87.6%. Three flow displacements 1.5, 1.9 and 2.2 pipe ...

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☒ Create alert**Thermo-fluidic characteristics of open cell metal foam as an anodes for DCFC, part I: Head loss coefficient of metal foam**TH Kim, W Lee, JH Jeong - *International Journal of Hydrogen Energy*, 2014 - Elsevier

Abstract A porous **metal** was suggested to be used for the anode of a DCFC. Thermo-fluidic characteristics of fuel-electrolyte mixture in the porous **metal** should be known in order for proper design of the anode. Previous researchers investigated pressure drop and heat ...

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[PDF] researchgate.net
Fulltext@UGent**Thermal development in open-cell metal foam: An experiment with constant wall heat flux**N Dukhan, Ö Bağcı, M Özdemir - *International Journal of Heat and Mass ...*, 2015 - Elsevier

Abstract Experimental heat transfer results for a commercial **open-cell** aluminum **foam** cylinder heated at the wall by a constant heat flux and cooled by water flow, are presented. The results cover thermal-entry and fully-developed regions. Measurements include wall ...

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[PDF] researchgate.net
Fulltext@UGent**Buoyancy driven convection in open-cell metal foam using the volume averaging theory**S De Champheleire, K De Kerpel, P De Jaeger... - *Applied Thermal ...*, 2015 - Elsevier

Abstract Heat sinks with **open-cell** aluminium **foam** are studied numerically in buoyancy driven convection with air as surrounding medium. Results from a 2D numerical model are compared to experiments for different **foam** heights. The numerical model is based on the ...

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Fulltext@UGent

- Databases
 - Web of science
 - Google Scholar
 - **ScienceDirect** (Elsevier)

9

CAN'T FIND PAPER?

- Try contacting the author
 - Check whether they have a profile on [ResearchGate](#) or [Academia](#), use interface to request paper copy.
 - Or e-mail them, saying their work is of interest to you
- Contact your daily supervisor for interlibrary request

BROWSING SCIENTIFIC LITERATURE (4)

– Conferences

- Some conference papers via Web of Science (no full paper)
- Shared folders for proceedings of attended conferences
- SAE (Society of Automotive Engineers) important for TT
→ check with supervisor whether available.
- Found an interesting paper, but not available at UGent?
Ask your supervisor to order it!
(after having tried with the author)

BROWSING SCIENTIFIC LITERATURE (5)

– Patents

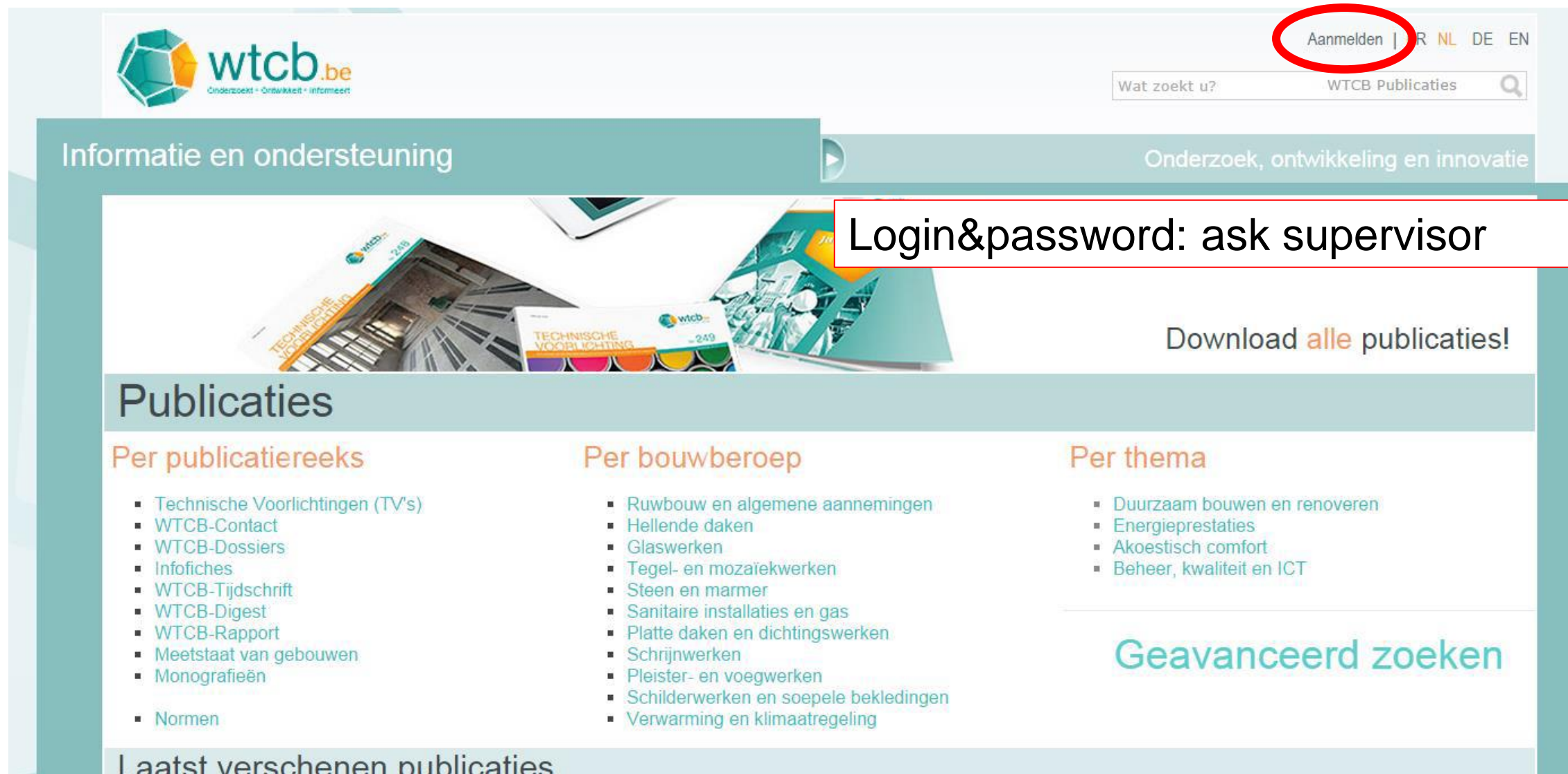
- <http://be.espacenet.com>
- <http://google.com/patents>
- Search via Google Scholar

– Technical websites

- WTCB

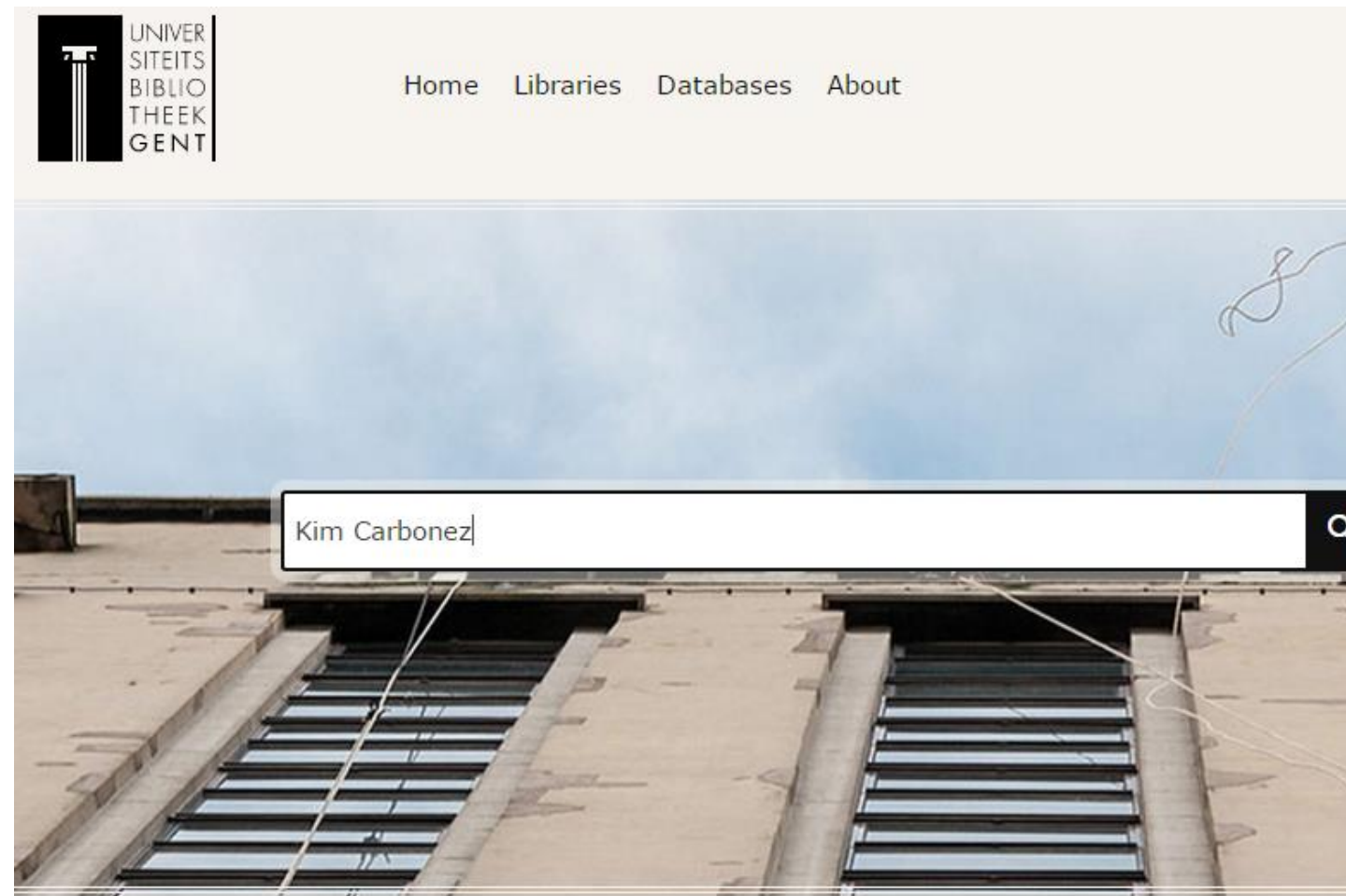
– Standards

- NBN Belgian standards:
 - <https://edu.mynbn.be/>
 - login and password: your UGent credentials (read-only access)
- Other countries/associations, e.g. ISO, EN, ASTM, BS, ASHRAE, AAMA, VDI, RAG:
ask supervisor if cannot be found



BROWSING SCIENTIFIC LITERATURE (6)

- Previous master theses
 - <http://lib.ugent.be>
 - Only online when >14/20 and not confidential



Home Libraries Databases About

Sign in NL EN

Kim Carbonez

Search collections

Home / Search: Kim Carbonez

1 - 8 of 8 Search Results

Sort automatic

Type

- ☐ article (1)
- ☐ presentation (6)
- ☒ master (1)

Access

- ☐ online (8)
- ☐ print (1)

Year

- ☒ After
- ☐ Before
- ☐ Between

2013 Apply

Faculty

- ☐ Engineering & Architecture (8)

Language

- ☐ English (7)
- ☐ Dutch (1)

NEED HELP?

Live chat online

presentation

Comparison between uniform rain loads and point sources to simulate rainwater leakage with commercial HAM-models

Kim Carbonez

(2015) International Symposium on Building Pathology (ISBP 2015)

View online

presentation

On the applicability of quantitative infrared thermography on window glazing

Kim Carbonez

(2014) 10th Nordic Symposium on Building Physics (NSB 2014)

View online

master

Finite element simulation of tensioned membrane structures in deployable systems

Kim Carbonez

Submitted in 2013

Masterproef ingediend tot het behalen van de academische graad van Master in de ingenieurswetenschappen: architectuur

View online

2) PROCESSING

PROCESSING SCIENTIFIC LITERATURE (1)

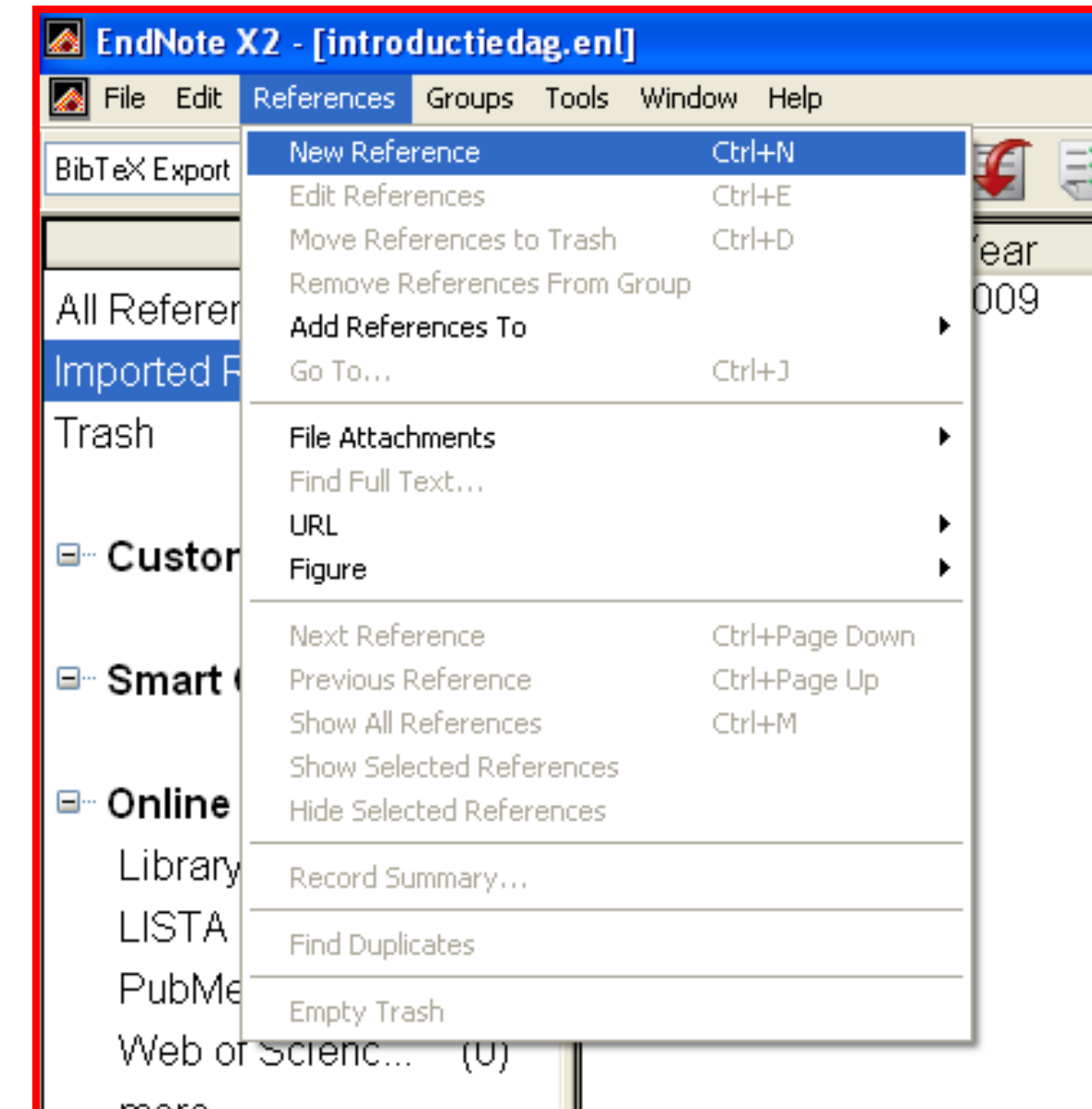
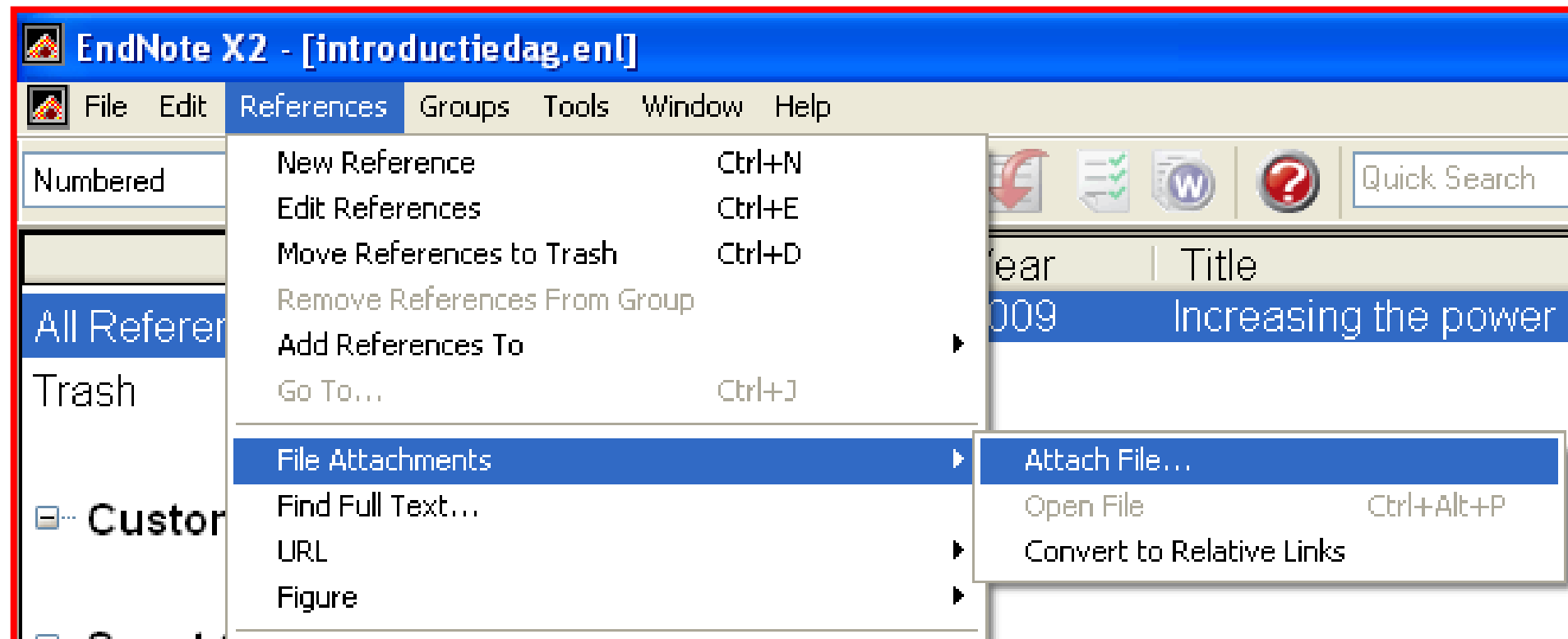
Reference software:

- **Endnote**: via Athena /Office/Endnote
 - Compatible with Word and LaTeX
 - <http://helpdesk.ugent.be/software/endnote.php>
- Mendeley (free ref. manager... From Elsevier)
 - Compatible with Word, Latex, Open-office
 - More info: www.mendeley.com/features/
- Others...

ENDNOTE (1)



- Export references from databases:
 - ScienceDirect, google scholar, WoS
- Add new reference manually
- Add PDF version of the paper



Analysis of anisotropy and strain rate sensitivity of open-cell metal foamM Vesenjak, C Veyhl, T Fiedler - *Materials Science and Engineering: A*, 2012 - Elsevier

This paper addresses numerical and experimental analysis of the m. pore® aluminium foam. Numerical models are based on computed tomography data in order to capture the complex material meso-structure. Uni-axial experimental tests were performed for quasi-static ...

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**Strong wall and transverse size effects on p
open-cell metal foam**N Dukhan, M Ali - *International Journal of Thermal Science*

In applications where a fluid flows through the open pore as an infinite porous medium for which the Darcy law and applied, in order to describe the pressure drop and to obt

Cited by 26 Related articles All 5 versions Web of Science: 1

**Effect of frequency on heat transfer due to c
metal foam: An experimental study**N Dukhan, Ö Bağcı, LA Kavurmacioğlu - *Experimental Thermal and Fluid Science*

Abstract Heat transfer due to oscillating water flow in open-cell metal foam subjected to constant wall heat flux was investigated experimentally. The foam was subjected to a constant wall heat flux of 100 W/m² and a porosity of 87.6%. Three flow displacement frequencies were investigated. The results show that the heat transfer coefficient increases with increasing frequency. The results also show that the heat transfer coefficient is higher for the foam with a higher porosity.

Cited by 2 Related articles Web of Science: 1 **Cite** Save**Thermo-fluidic characteristics of open cell metal foam
part I: Head loss coefficient of metal foam**TH Kim, W Lee, JH Jeong - *International Journal of Hydrogen Energy*

Abstract A porous metal was suggested to be used for the cathode of a fuel cell. The characteristics of fuel-electrolyte mixture in the porous metal were investigated. The proper design of the anode. Previous researchers investigated the characteristics of fuel-electrolyte mixture in the porous metal. The results show that the head loss coefficient increases with increasing porosity. The results also show that the head loss coefficient is higher for the foam with a higher porosity.

Cited by 5 Related articles All 5 versions Web of Science: 1

**Thermal development in open-cell metal foam
wall heat flux**N Dukhan, Ö Bağcı, M Özdemir - *International Journal of Thermal Science*

Abstract Experimental heat transfer results for a commercial open-cell metal foam cylinder heated at the wall by a constant heat flux and cooled by a fluid. The results cover thermal-entry and fully-developed regions. Measurements include wall ...

Cite

Copy and paste a formatted citation or use one of the links to import into a bibliography manager.

MLA Vesenjak, M., C. Veyhl, and T. Fiedler. "Analysis of anisotropy and strain rate sensitivity of open-cell metal foam." *Materials Science and Engineering: A* 541 (2012): 105-109.

APA Vesenjak, M., Veyhl, C., & Fiedler, T. (2012). Analysis of anisotropy and strain rate sensitivity of open-cell metal foam. *Materials Science and Engineering: A*, 541, 105-109.

Chicago Vesenjak, M., C. Veyhl, and T. Fiedler. "Analysis of anisotropy and strain rate sensitivity of open-cell metal foam." *Materials Science and Engineering: A* 541 (2012): 105-109.

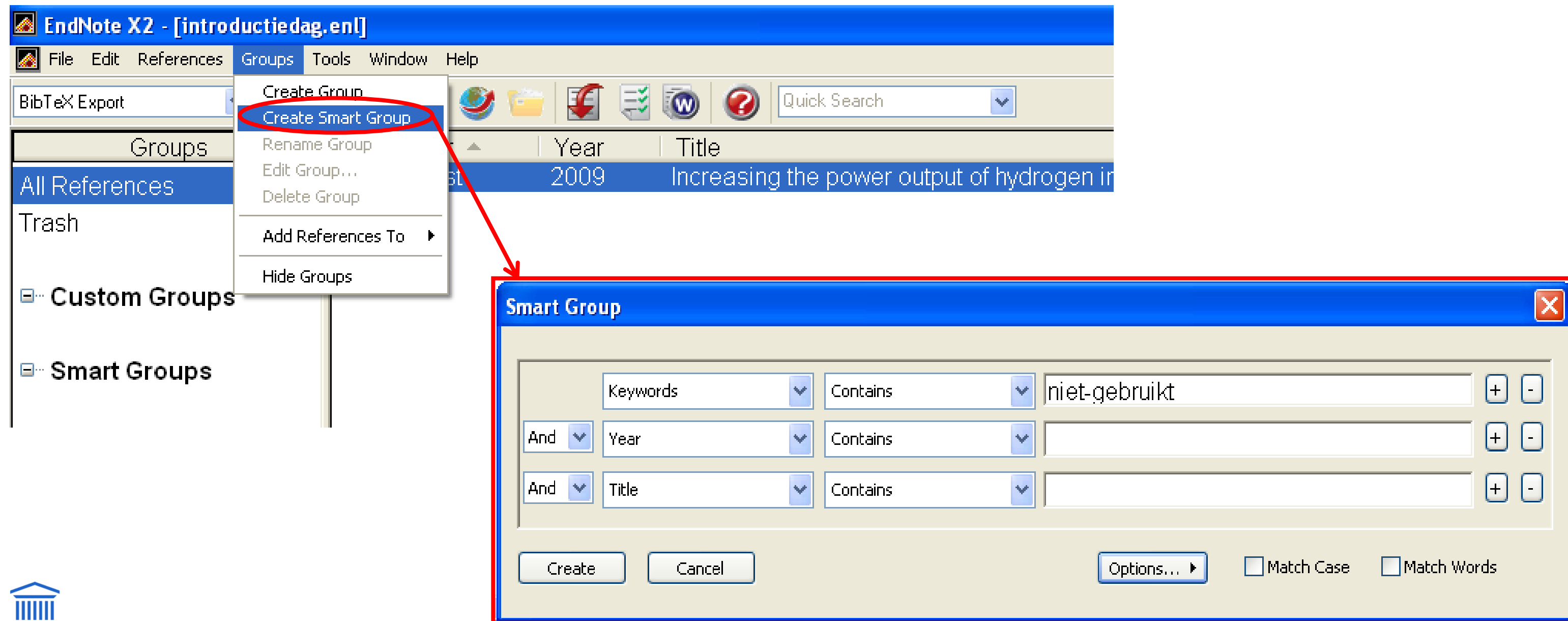
Harvard Vesenjak, M., Veyhl, C. and Fiedler, T., 2012. Analysis of anisotropy and strain rate sensitivity of open-cell metal foam. *Materials Science and Engineering: A*, 541, pp.105-109.

Vancouver Vesenjak M, Veyhl C, Fiedler T. Analysis of anisotropy and strain rate sensitivity of open-cell metal foam. *Materials Science and Engineering: A*. 2012 Apr 15;541:105-9.

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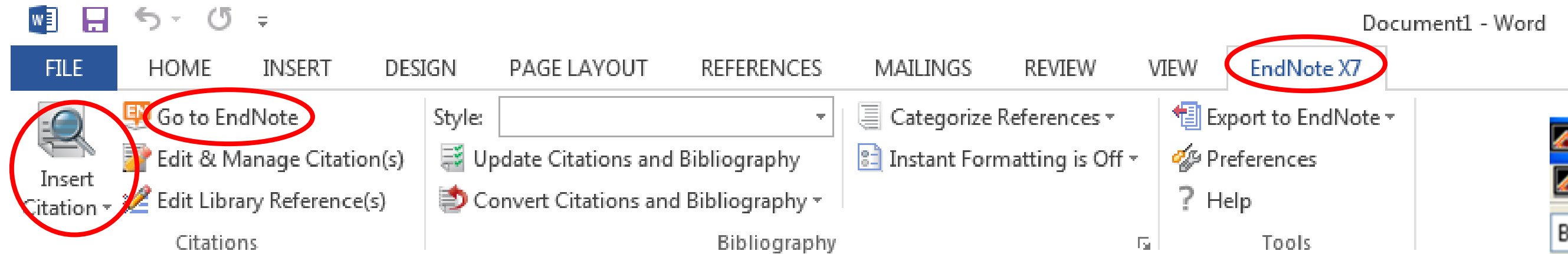
ENDNOTE (2)

- Tip: create Smart Groups
- Not read / read / not used / different subjects / based on keywords



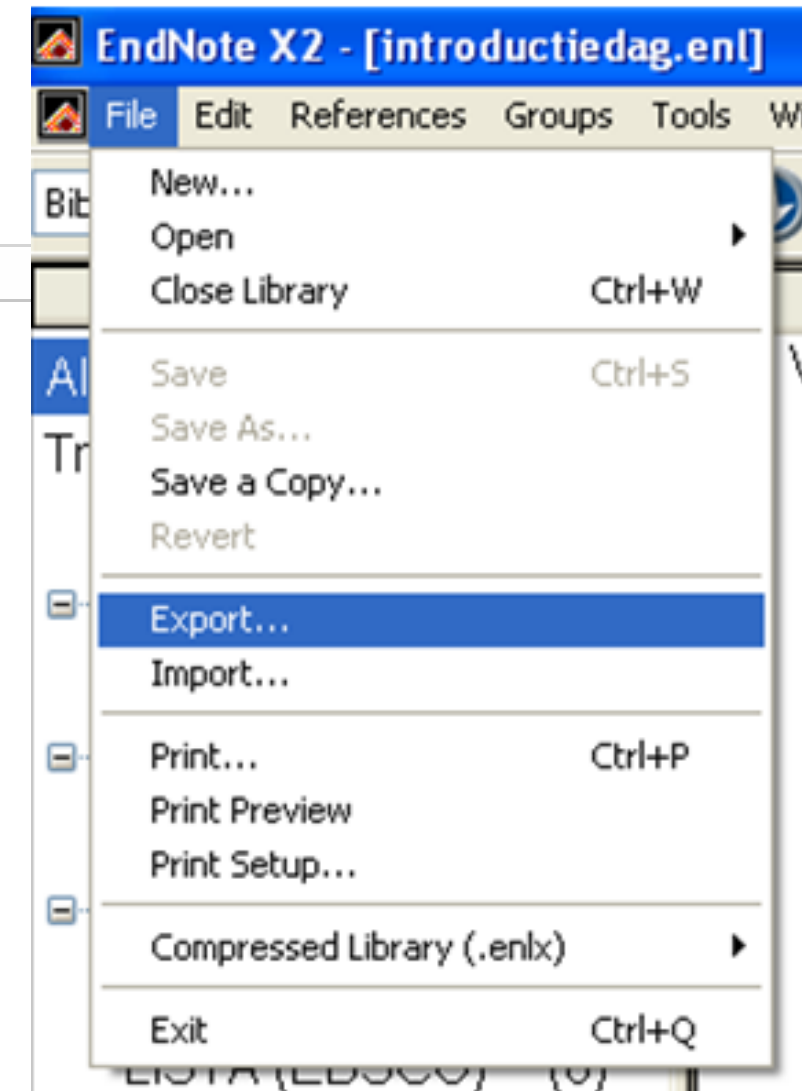
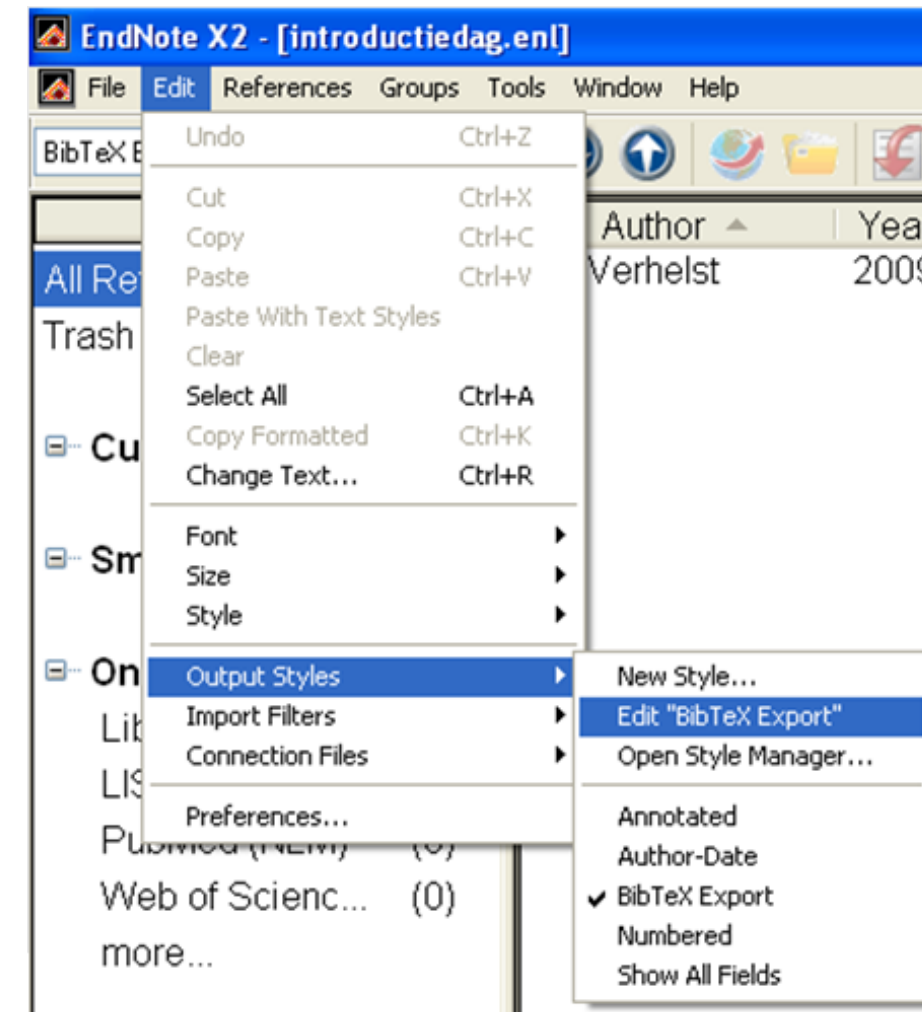
ENDNOTE (3)

– Endnote and Word (free via Athena)



– Endnote and LaTeX

- Export .enl file to .bib file
- Output style “BibTeX Export”
- Refer in text via `\cite{label}`
- More info: latex.ugent.be



3) YOUR LITERATURE STUDY

HOW TO WRITE A GOOD INTRODUCTION AND LITERATURE SURVEY? (1)

- **Start** by introducing the broad context of the thesis
 - Not too broad (“in the beginning, there was nothing...”)
 - Think about reader: e.g. external jury member (= not directly working on your topic). Background = MaEM graduate
- **Finish** by giving the problem and goal statement
- Your survey (for yourself!) should answer **3 questions**:
 - What is already known?
 - What can I use directly to solve my problem?
 - Where are the results contradictory / Where is knowledge still lacking?
- The final *review* is **not** a summary of every paper you have read, but rather a synthesis of the current ‘state of the art’ concerning your research topic
 - The summary is still useful for yourself, as a first step

HOW TO WRITE A GOOD INTRODUCTION AND LITERATURE SURVEY? (2)

- At the conclusion of your survey you can state what the specific **goal** of your thesis is, e.g.:
 - Applying the available knowledge to a specific (**new**) problem
 - Gathering **new** fundamental knowledge by investigating the identified issues in the literature survey
- **Don't try to be exhaustive**
 - Avoid recitation, but stress the differences-similarities
 - Ask yourself if the reader really needs the information to understand your story/follow your statement
- Try to write an 'easy' to follow story
 - E.g. "tell tell tell" technique:
 - What are you going to tell (intro)
 - Tell them (body)
 - What did you just tell (wrap-up, link to next section)

BAD EXAMPLE

Engine tests using *Chlorella vulgaris* sp. are reported by Makarevicienė et al. [33]. The algae oil used for biodiesel production contained 7.6% of saturated fatty acids, 64.9% of unsaturated and 27.5% of polyunsaturated fatty acids. A two-step transesterification procedure was performed in a laboratory reactor for biodiesel production. Fuel mixtures containing 30% (v/v) biodiesel fuel (rapeseed oil methyl esters or microalgae oil methyl esters) and 70% (v/v) diesel fuel were used. The tests were performed in a diesel generator onboard a ship. The engine runs on a wide range of fuels, including pure biodiesel. As a result, when running each engine load with 30% (B30) of biodiesel, the brake-specific fuel consumption was approximately 3-3.5% higher than that with diesel fuel. When the engine ran on B30, the stoichiometric constant decreased by 3-3.5%, from 14.24 kg air/kg fuel for diesel to 13.7- 13.83 kg air/kg fuel (B30). In a comparison with rapeseed oil biodiesel, the authors found no significant differences. Concerning the exhaust emissions, the conversion of a Valmet 320 DMG engine from running on diesel to running on B30 from algae reduced hydrocarbons by approximately 10% compared to B30 from rapeseed oil. When running on B30 from algae, the engine's thermal efficiency was 2.5-3% higher compared to diesel fuel. The main effect of the improvements made to the environmental indicators was related to the reduction of the smoke by 10-75% and the reduction of HC emissions by 5-25% compared to diesel fuel.

Another report was presented by Haik et al. [34]. The engine used was a Ricardo E6 single cylinder variable compression indirect injection diesel engine. The studied algae species were *Ankistrodesmus braunii* and *Nannochloropsis* sp. The combustion pressure was measured by a water-cooled piezo-electric pressure transducer. The study was carried out to cover different types of fuels (base diesel fuel, algae oil methyl ester, algae oil methyl ester blended with diesel at 50/50 ratio and raw algae oil). For each fuel the engine parameters were varied according to the following levels: engine speed between 1080-1800 rpm, engine injection between 20-45° before top dead center (BTDC), load output torque from 2-18 Nm and compression ratio varied from 18 to 22. Biodiesel exhibits the highest combustion pressure rise rate compared to raw algae oil and diesel fuel but also higher ignition delay. The methyl esters exhibited more combustion noise compared to the diesel fuel or raw algae oil. Biodiesel produced less engine torque output than the diesel case and raw algae oil and slightly higher heat release rate compared to diesel fuel. The authors found a non-direct correlation between engines performance and the amount of methanol used in the chemical process for biodiesel production.

BAD EXAMPLE

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1 paragraph per paper

Basically summarizing paper

What's the added value?

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GOOD EXAMPLE

J. Vancoillie et al. / Applied Energy 102 (2013) 140–149

“The elevated flame speed and wide flammability limits of alcohols open some alternative options for load control, especially for methanol. Pannone and Johnson [12] have published results from an experimental turbocharged lean-burn methanol engine. The reported brake thermal efficiencies are up to 14% better than for stoichiometrically fuelled engines with throttled load control [15]. Engine-out CO emissions were reduced by over 50%, while unburned fuel emissions mildly increased. The tailpipe NOx penalty of the lean burn strategy reached up to 150%, making the practical use of such a strategy questionable.”

GOOD EXAMPLE

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Intro

GOOD EXAMPLE

J. Vancoillie et al. / Applied Energy 102 (2013) 140–149

“The elevated flame speed and wide flammability limits of alcohols open some alternative options for load control, especially for methanol. Pannone and Johnson [12] have published results from an experimental turbocharged lean-burn methanol engine. The reported brake thermal efficiencies are up to 14% better than for stoichiometrically fuelled engines with throttled load control [15].

Engine-out CO emissions were reduced by over 50% while unburned fuel emissions were reduced by over 20%. Highlighting what’s important for your problem/goal statement, real comparing to other results (= new information)

GOOD EXAMPLE

J. Vancoillie et al. / Applied Energy 102 (2013) 140–149

“The elevated flame speed and wide flammability limits of alcohols open some alternative options for load control, especially for methanol. Pannone and Johnson [12] have published results from an experimental turbocharged lean-burn methanol engine. The reported brake thermal efficiencies are up to 14%

better than for stoichiometric
Engine-out CO emissions

Giving your own judgment / adding implications

emissions mildly increased. The tailpipe NOx penalty of the lean burn strategy reached up to 150%, making the practical use of such a strategy questionable.”

A TOOL: “CARS”

CARS – ”Creating A Research Space”

- A tool for writing an introduction that works*
 - Move I: Establishing a research territory
 - Move II: Establishing a research niche
 - Move III: Occupying the niche

* Swales, JM and Feak, CB, Academic writing for graduate students, 2nd Ed. Ann Arbor: University of Michigan Press (2004)

ESTABLISHING A RESEARCH TERRITORY

- Show that the general research area is important, central, interesting, problematic, or relevant in some way:
 - *“In light-duty (LD) diesel engines, combustion noise levels need to be mitigated to fulfill customer expectations and legal requirements...”*
- Introduce and review items of previous research in the area:
 - *“Some early studies used a pilot injection dwell of around 50 CAD, which is very large by modern standards...”*

ESTABLISHING A RESEARCH NICHE

- Indicate a gap in the previous research, or a need to extend previous knowledge in some way
 - *“While the effects of single pilot dwell spacing have been studied, there is a gap in research regarding multiple closely-coupled pilot injections which still feature a distinct main injection...”*

OCCUPYING THE NICHE

- Outline the purpose of your study
 - *"This work is an investigation into what implications these closely-coupled triple-pilot strategies have on the heat release process..."*
- List research questions or hypotheses
 - *"The hypothesis is that the heat release rate is the factor controlling the combustion noise..."*
- Announce principal findings
 - *"It was found that the frequency of the HRR peaks determines the strongest noise frequencies."*

OTHER APPROACH

1. Motivation
2. Research problem
3. Research question

OTHER APPROACH

1. Motivation

- Tell the reader why your research problem is important or interesting. E.g.:
 - *“We must limit combustion noise from light-duty diesel engines to fulfill customer expectations and future legal requirements – if we don’t, the diesel engine is dead.”*
 - *“PPCI yields low PM and NO_x emissions, but due to the high levels of EGR, the UHC emissions are usually high. This could be a showstopper for this promising technology.”*

OTHER APPROACH

2. Research problem

- The research you present addresses a research problem. To motivate your research, you must establish this problem for the reader!
- It is usually a "knowledge gap" – something that is not known
 - Tell us how others have studied your problem area
 - Establish the gap by telling us what they didn't study
 - This helps us understand why you study it now...

OTHER APPROACH

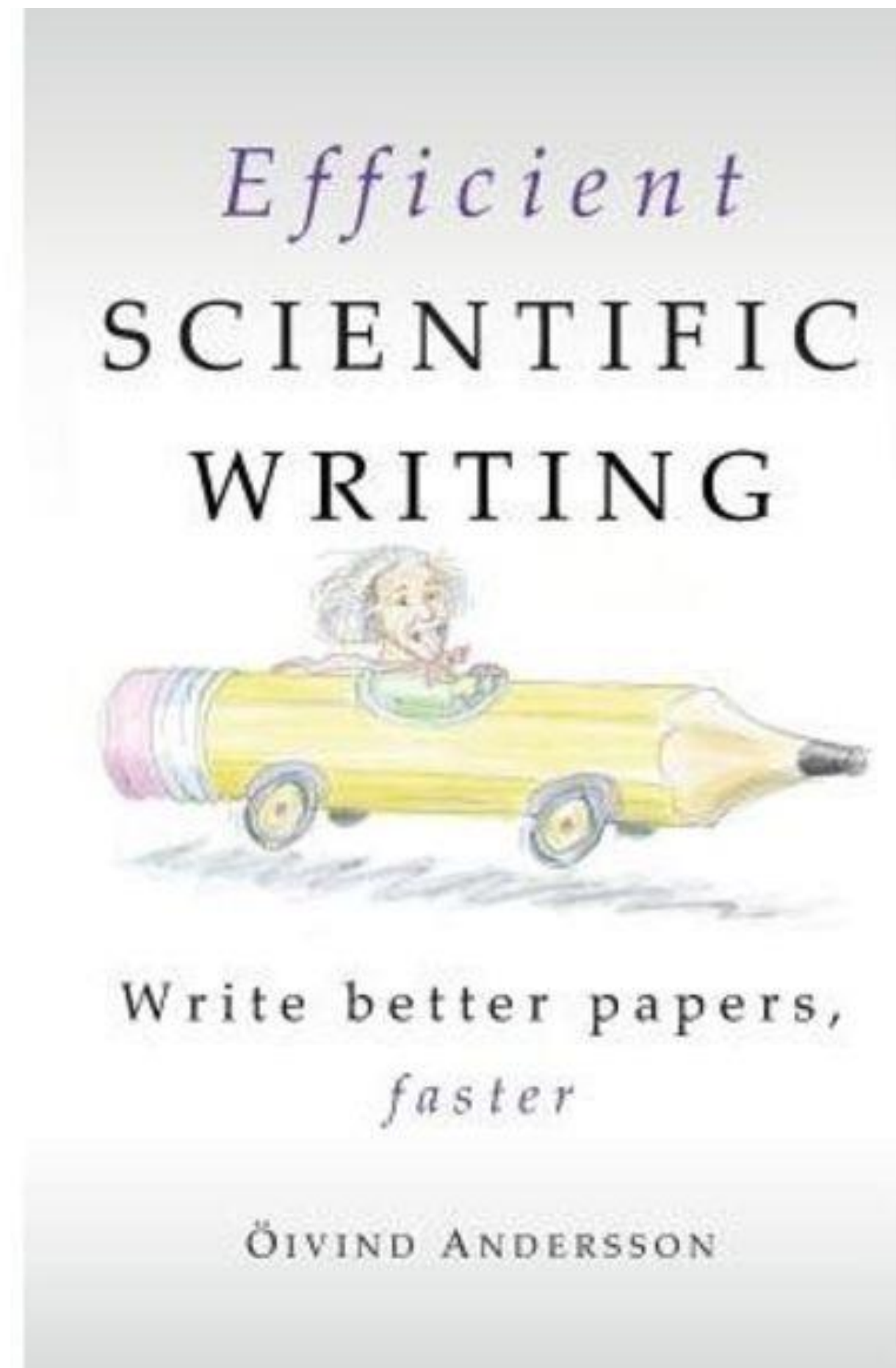
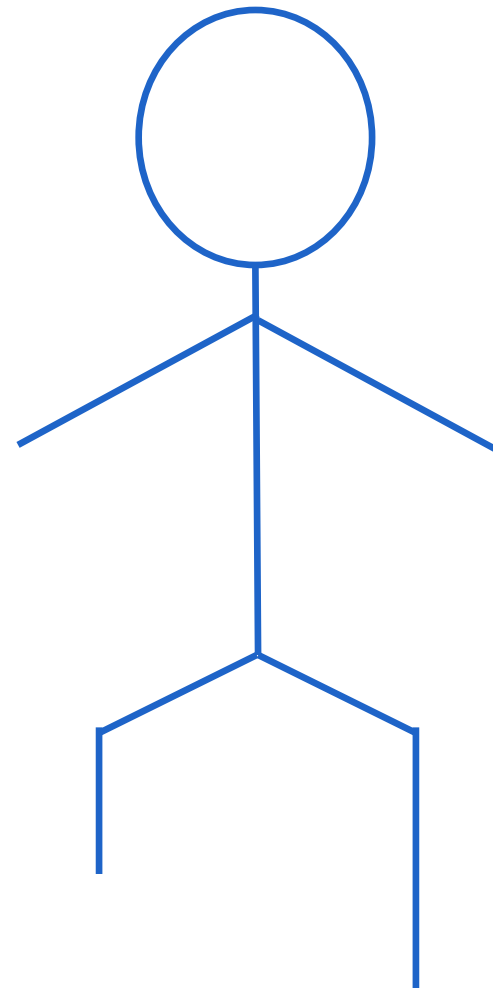
3. Research question

Formulate the question/hypothesis/goal. (It doesn't have to be formulated as a question.) What drives your specific experiment/study? For example:

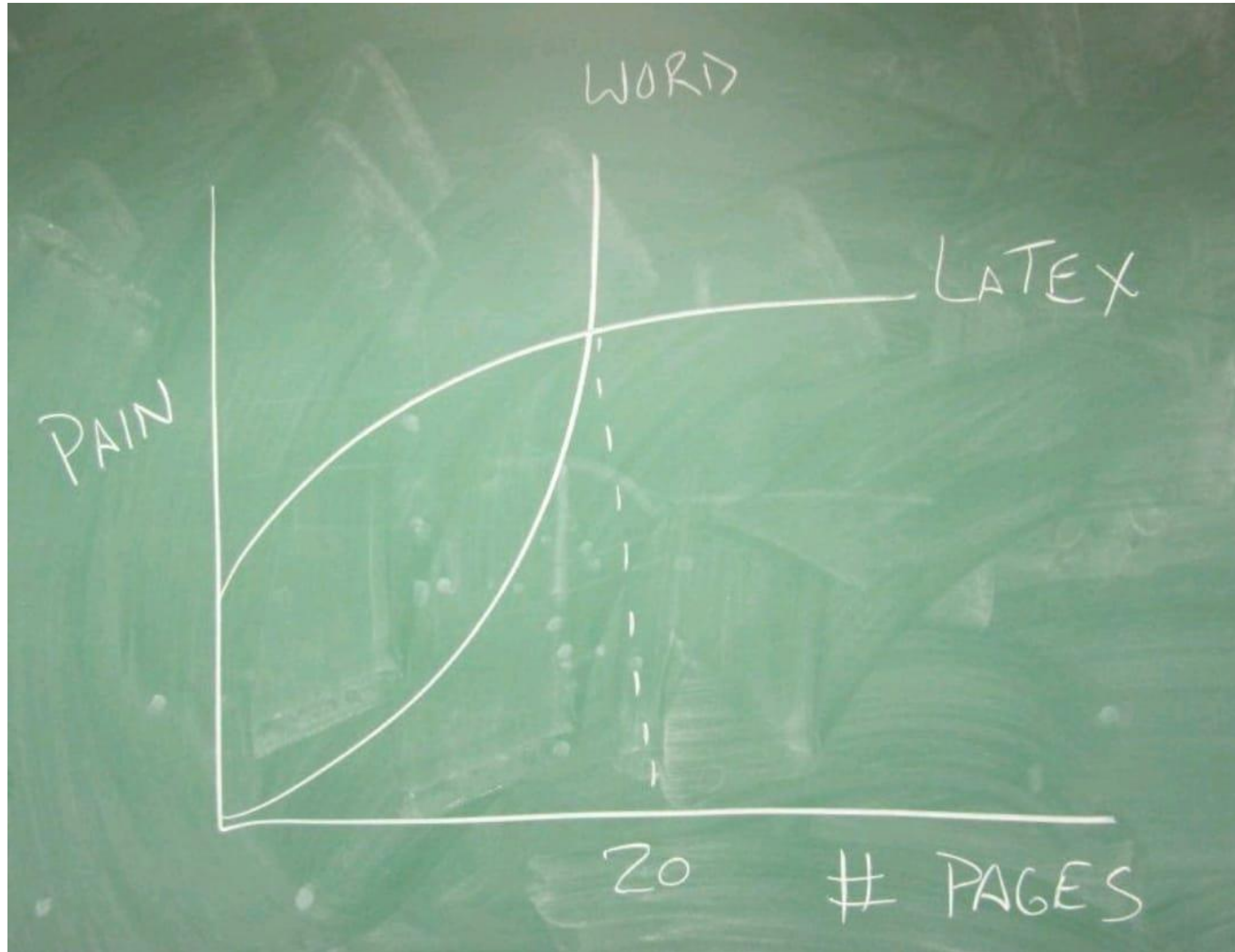
- *"The hypothesis is that the shape of the heat release rate determines the combustion noise of the engine"*
- *"I will present in-cylinder PLIF distributions of UHC obtained under typical PPCI conditions to clarify the sources of UHC emissions in PPCI combustion systems"*

TIP

- Booklet highly recommended
- E.g.: make yourself a map,
a blueprint, a “strawman draft”
... before you start
writing in earnest



TIP: WORD PROCESSOR



FINAL NOTE: OUR EXPECTATIONS

- Supervisors may contact you concerning different focus
 - Extensive literature review, or most recent findings combined with initial experimental results, ...
- 17 Nov: “strawman draft” of literature study
 - 1 or 2 pages: covering sections and storyline
 - You get feedback within a day if we spot issues (e.g. wrong focus)
- 1 Dec: full version
 - You get feedback before Xmas
 - Depending on number of comments, we might ask for a reworked version by 2nd semester
- This is intended for you to get started reading asap, and writing asap – these things need practice! Getting feedback increases your learning.

AI?

- All of the above was made before the rise of generative AI!
- Check [Generatieve AI in het UGent-onderwijs — Studentenportaal — Universiteit Gent](#) and [ai_2425.pdf \(ugent.be\)](#) (so far both only NL)
- Bottom line: you can use it “responsibly”
 - But there are pitfalls
 - And you have to document it
 - And there might come additional requirements as supervisors get to grips with it (to be continued...)
 - And there will be extra checks on your own contribution (cfr. new thesis evaluation rules and “thesis exam”)

STILL QUESTIONS?

- Go to <https://www.ugent.be/ea/eemmecs/en/education/stfes/master-thesis>
- Ask your supervisor
 - Preferably not: “How should I do this?”,
but rather: “Would *this* be the best approach?”

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