



# Reuse of waste fishing nets in construction materials

Ida M. G. Bertelsen & Lisbeth M. Ottosen

Department of Civil Engineering  
Technical University of Denmark

E-mail:  
[imgber@byg.dtu.dk](mailto:imgber@byg.dtu.dk)  
[lo@byg.dtu.dk](mailto:lo@byg.dtu.dk)

# ARTEK

- ARTEK is DTU education centre in Arctic technology.
- The centre is situated in Sisimiut, West Greenland and educates Greenlandic and Danish engineering students in Arctic technology on BE and MA level.





# Motivation

- Reuse of local waste materials from the fishing industry and find a proper application for waste fish nets in the construction industry
- Replace virgin materials with waste materials to create more eco-friendly materials
- Engage engineering students and local developers in projects



# Major research tasks

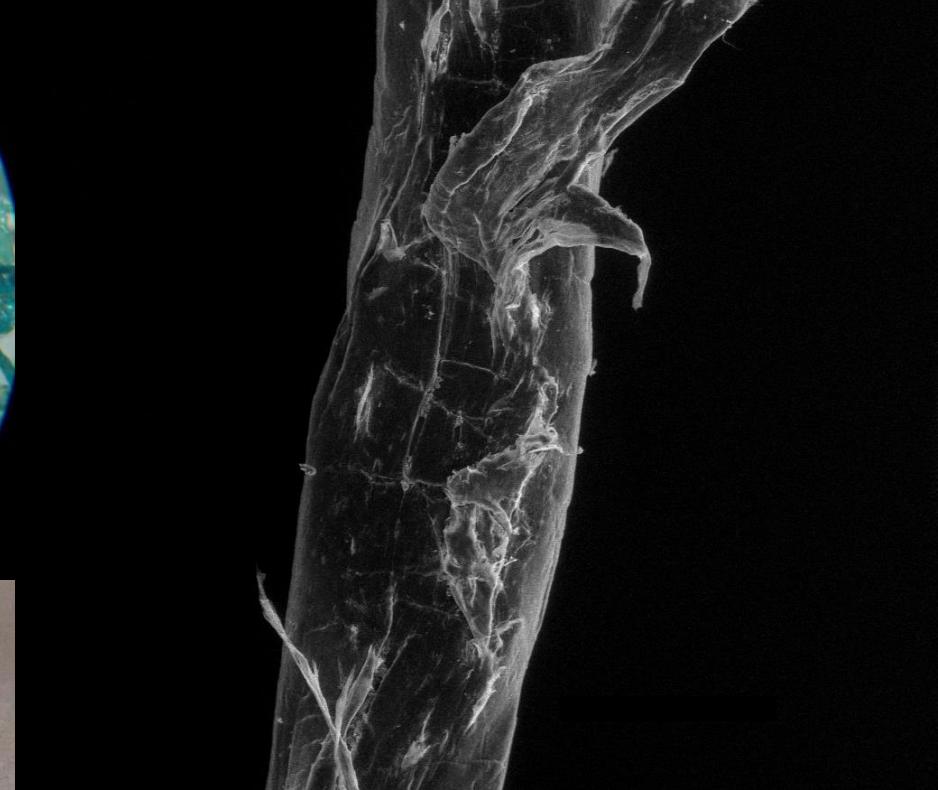
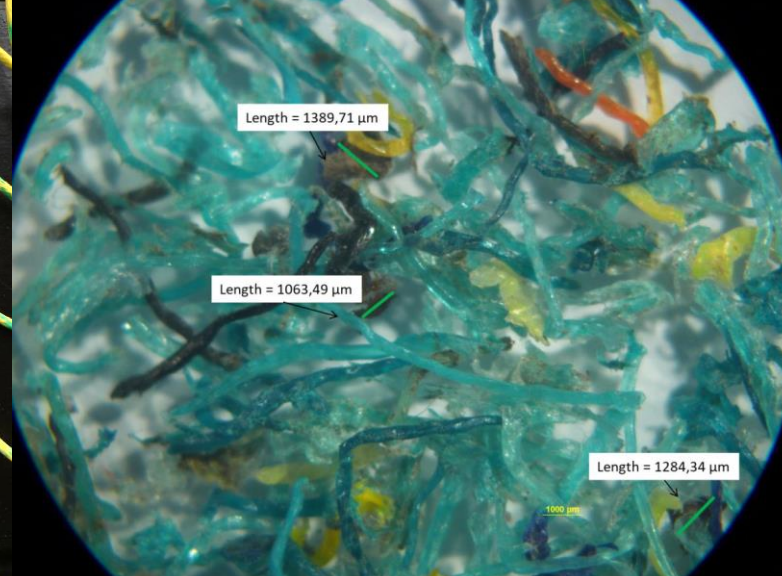


Characterization of  
waste fish nets –  
engineering  
properties

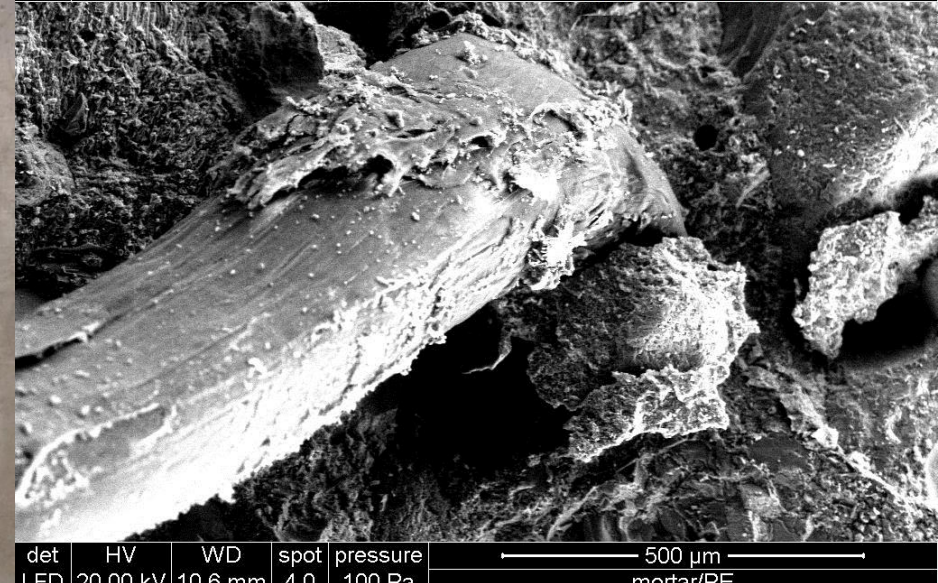
Reuse of waste  
fish nets in  
construction  
materials

Thorough testing  
and evaluation of  
fibre reinforced  
concrete





det	HV	WD	spot	pressure	500 μm
LFD	15.00 kV	10.0 mm	4.0	100 Pa	Waste 28 days NaOH



det	HV	WD	spot	pressure	500 μm
LFD	20.00 kV	10.6 mm	4.0	100 Pa	mortar/PE







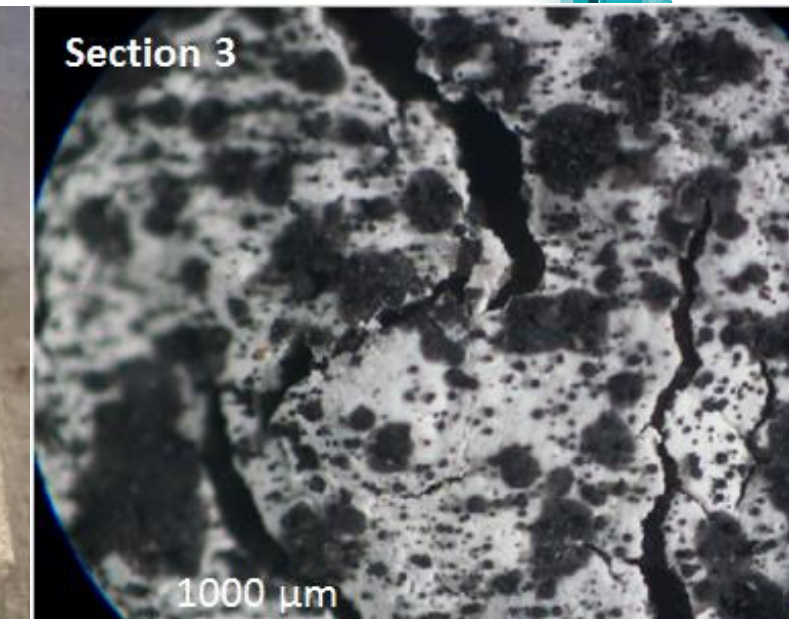
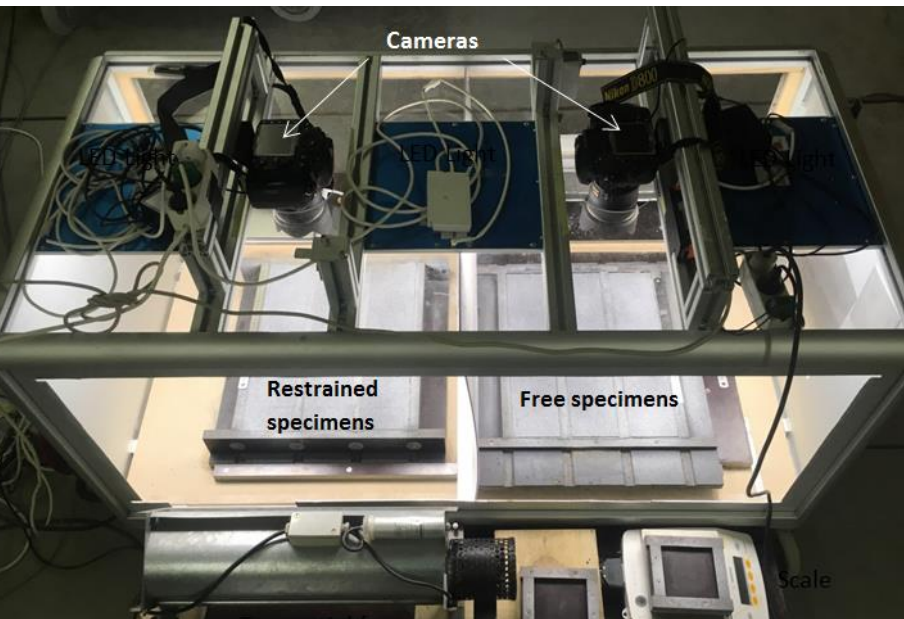
# Why use fibre reinforcement?

- The addition of fibres is an effective way to improve the performance of concrete
- For **structural** purposes – improvement of mechanical properties, e.g. ductility
- For **durability** purposes - control of shrinkage cracking



# Cracking in concrete

- Testing cement-based mortar specimens vulnerable to shrinkage cracking
- Method: Simulate realistic severe conditions with respect to environment and conditions for concrete casting
- Compare influence of recycled fibres with virgin fibres
- Using image analysis to analyse surface crack development



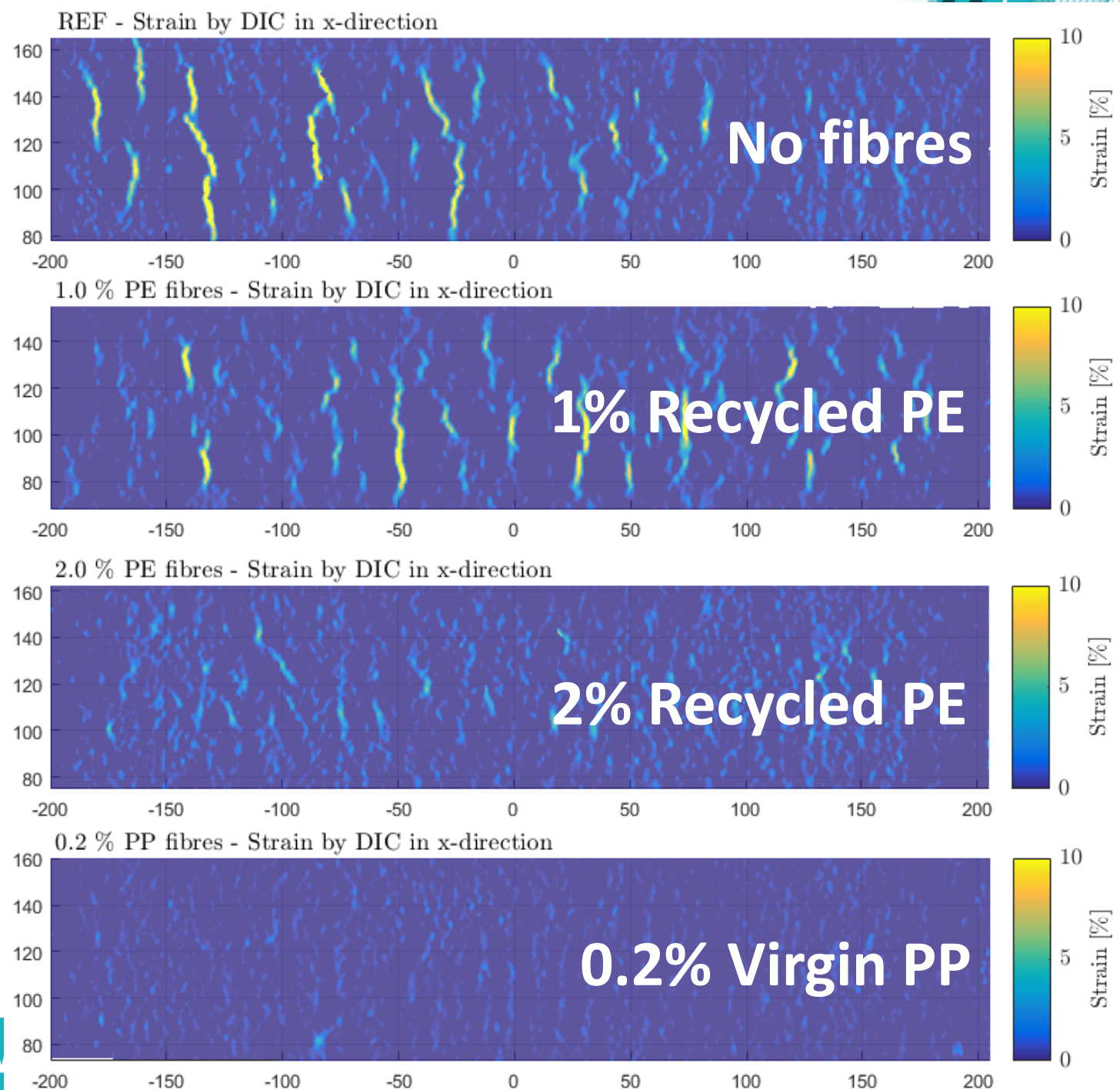


# Concrete cracking

Comparison of recycled PE fibres with unreinforced specimens and commercially available PP fibres

2vol% of recycled PE fibres perform good in controlling cracking in concrete!

85% less surface cracking compared to the reference



July 14, 2017

ECOLE  
TECHNICAL UNIVERSITY

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Reuse of waste plastic  
in ceme

Plastic shrink  
materials re

Caroline



*Student:*  
Guillemette CARDINAUD

*School supervisor:*  
Emmanuel ROZIÈRE

*Specilization:*

Master Thesis - June 2018

## Recycling fishing nets into concrete

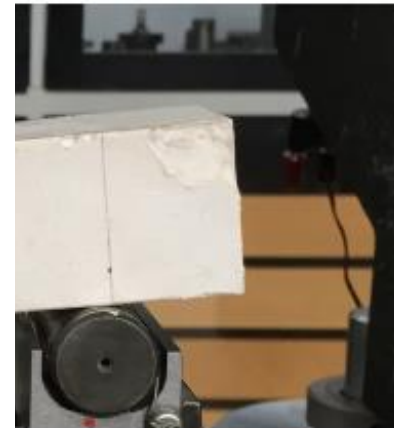


**Student:** Edurne Suárez Lejardi - s180271

**Supervisors:** Lisbeth M. Ottosen

Ida Maria Gieysztor Bertelsen

te building





# Acknowledgement



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**Northern Periphery and  
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