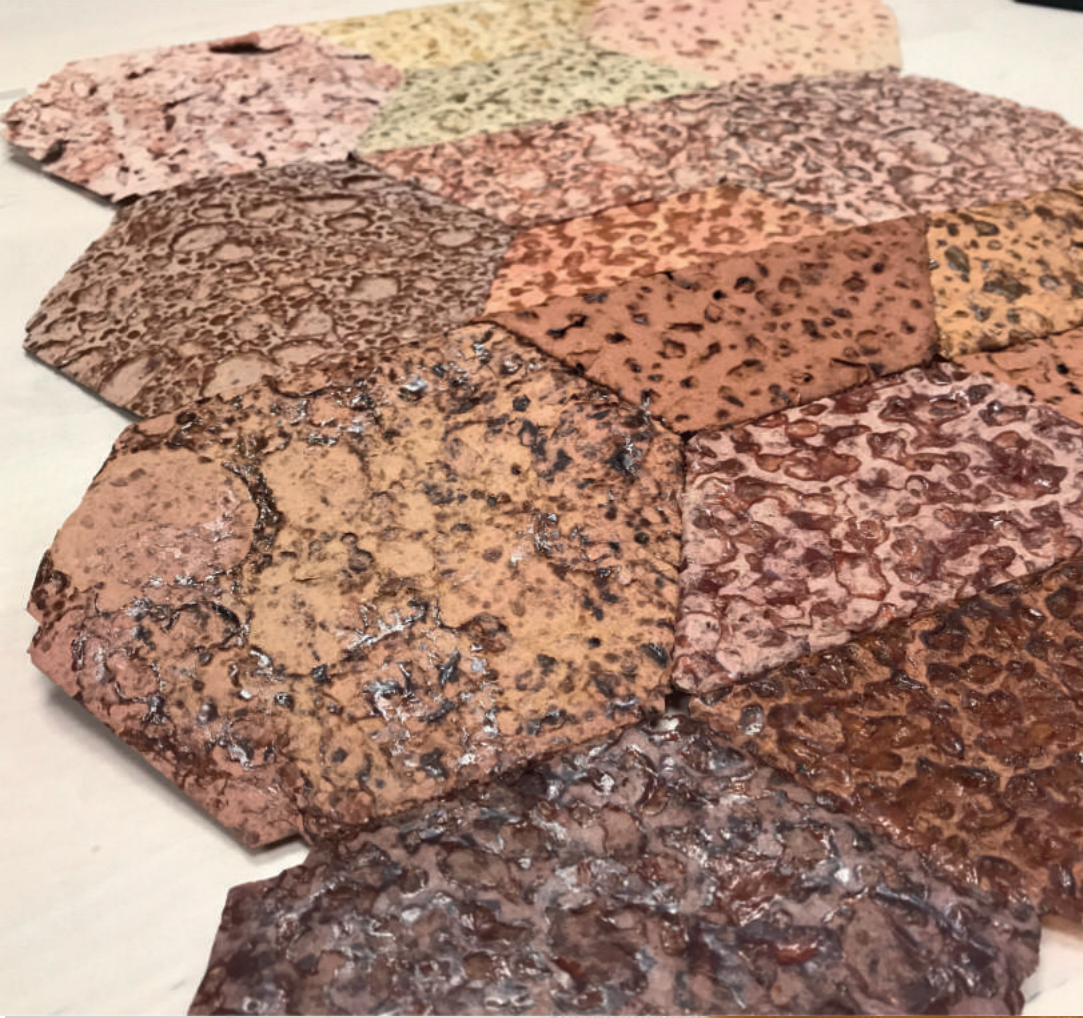


Redistributed & Digital:

How can digital finishing technologies be used to enhance non-woven textile materials and contribute towards a model for circular production?

Dr. Helen Paine

Supported by Dr. Kate Goldsworthy & Professor Becky Earley



Challenging 'take, make, waste' model

- › Current textile production models follow a linear trajectory of 'take, make, waste'
- › The rise of a fast-fashion model in recent decades has led to a proliferation of waste in landfill, particularly of synthetic based non-biodegradable fabrics
- › The Slow fashion movement encourages extended use of textile products; kept in cycles of use for longer through repair, reuse and sharing economies
- › Recycling of material waste to prolong its useful life is another approach and many material designers are working using innovative methods to develop new material solutions from waste

'Bio-marble' material created from waste paper seen at Surface Design Show and Material Driven (Hannah Elisabeth 2017)

Designing out waste

- › Centre for Circular Design (CCD) at Chelsea College of Arts are proposing a systems-based approach to their practice-led research within Mistra Future Fashion (mistrafuturefashion.com), a Swedish government funded cross-disciplinary project, and are working with fashion brand Filippa K to prototype their ideas and showcase them within an industrially applied setting
- › CCD propose a system of both fast and slow products; whereby fast products are enabled sustainably through slow material systems of reuse and recycling
- › Redistributed manufacture (RdM) or local production is also considered to minimise waste & limit transportation making a significant reduction to the overall carbon footprint of textile products
- › Post-Couture Collective are a pioneering open source fashion label. Garment patterns are downloaded from the online platform and constructed locally without stitch using an innovative laser cut seaming method



Martijn van Strien (Inventor) demonstrating construction of Post-Couture Collective products at Heimtextil (2018)



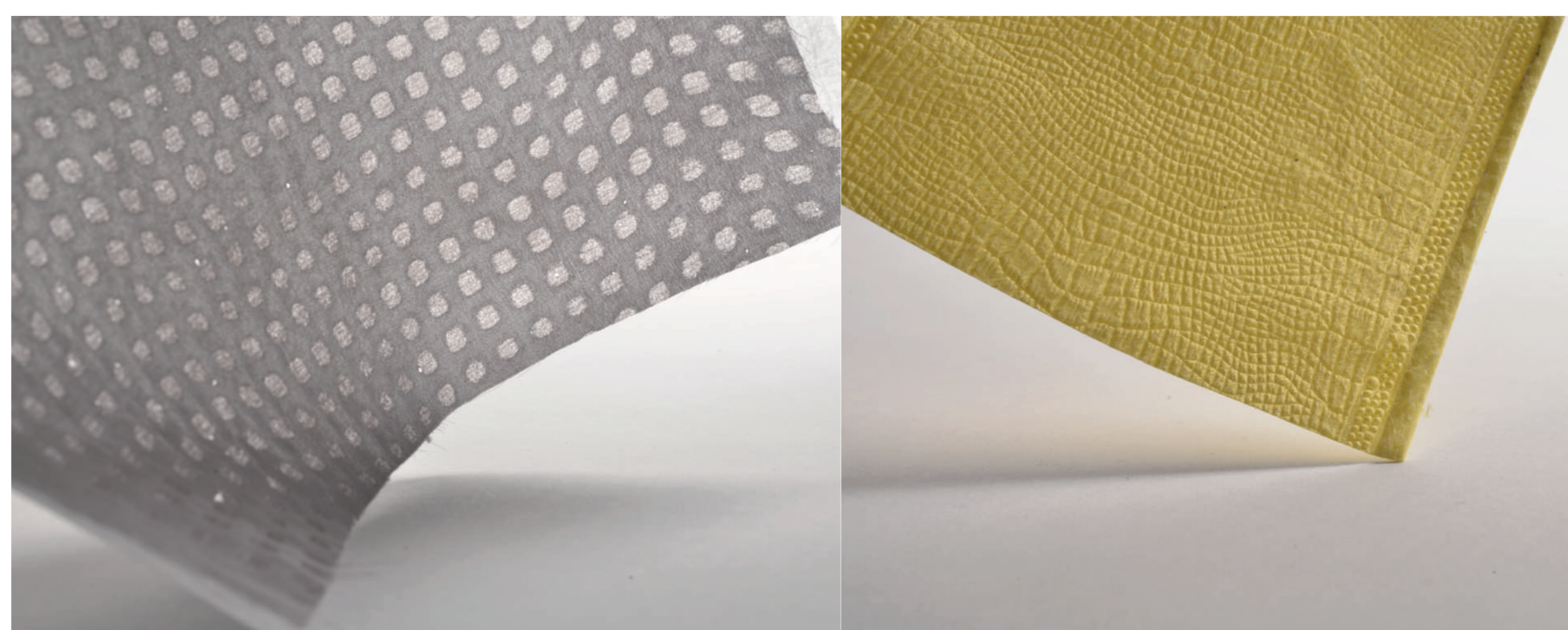
Non-woven material production using needle-felt method at UK-based manufacturing plant (2018)

Reducing carbon emissions

- › Life Cycle Analysis during Mistra Future Fashion Phase 1 (2011-2015) indicated significant savings to carbon emissions during textile product manufacture could be made
- › Non-woven materials are being investigated as a low-carbon alternative to traditional textile manufacturing methods (knit/weave)
- › This project will build on this proposal; investigating non-woven material manufacture and possibilities for digital enhancement to extend application opportunities and demonstrate product flexibility

Designing in material flexibility

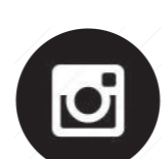
- › New and emerging digital technologies (e.g. additive manufacturing or digitally-driven textile production) have been recognised as tools that could assist redistributed manufacturing (RdM) of products towards a more circular economy
- › This project seeks to investigate digital enhancement of non-woven materials in consultation with material manufacturers and product developers
- › Opportunities for enhancement will be identified through consultation with industry professionals and explored through practice-led inquiry



Non-woven material samples developed using laser surfacing and embossing technologies for Mistra Future Fashion (2017)



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