Casted Wood

Heidi Turunen / Aalto University

DESIGN DRIVEN
VALUE CHAINS
IN THE **WORLD**
OF CELLULOSE
DWoC

Contents

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Objectives

Shapes
Colours
Surfaces

Potential application areas

Photo Eeva Suorlahti

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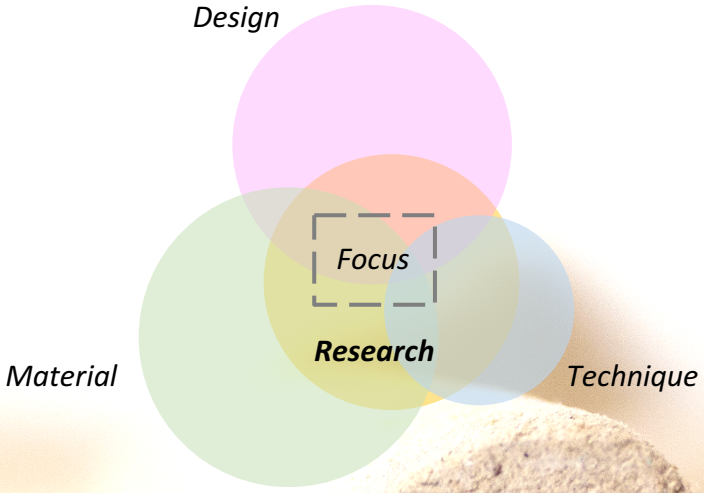
Methods



"Research Through Design" *generating new tacit and explicit knowledge how the cellulosic materials like to be handled, and what are the limits of the material.*

- Result: material samples, formal, visual and tactile experiments

"Research by Design" *visualizing potentials and creating preliminary knowledge for future product applications*

- Result: designed exhibition pieces

Photo Eeva Suorlahti

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Materials

SAWDUST / WOOD FLOUR

+

Mixing

↓

MOULDS

NANOCELLULOSE

Photos Eeva Suorlahti
www.noahsmarine.com

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Material Features and Value Propositions

- *Material Design:* Surface structures, colours, haptic value-laden properties and visuality can be designed varying the consistence, scale and proportion of ingredients

- *Shaping:* boards, panels, casted 3D objects
  - No need to hot press
  - The cast pieces are reproducible by using the moulds again

- *Postprocessing:* by drilling, sawing, sanding

- *Haptic properties:* surface temperature and texture are almost as in wood-based products

- *Environmental friendliness:* completely wood-based material combination has a low environmental impact and is recyclable

- *Economy:* competitive raw material price, simple production process

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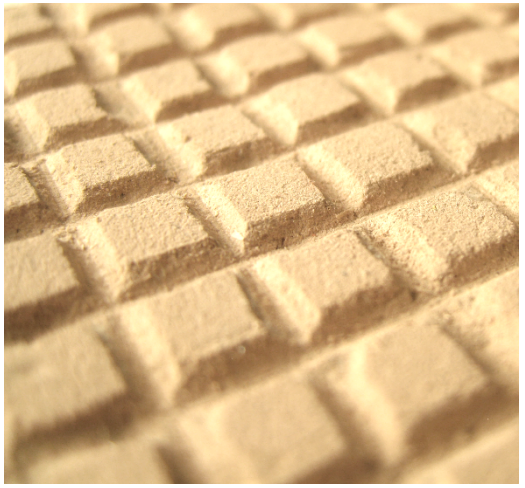
Experiments with Shapes

Freeform geometry

Regular shapes



Regular patterns

Details of casted tiles, 2016-2017
Photo Heidi Turunen

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Shaping by Casting

→ *New method among wooden products*

→ *Enables for new forms and shapes*

→ *Material consumption: saves material & energy*

Experiments with Colours

Photo Eeva Suorlahti

Dyeing of Material

→ *Alterating visuality by selecting different dyes:*

→ *Soft tones*

→ *Vivid hues*

Photo Eeva Suorlahti

Experiments with Surfaces

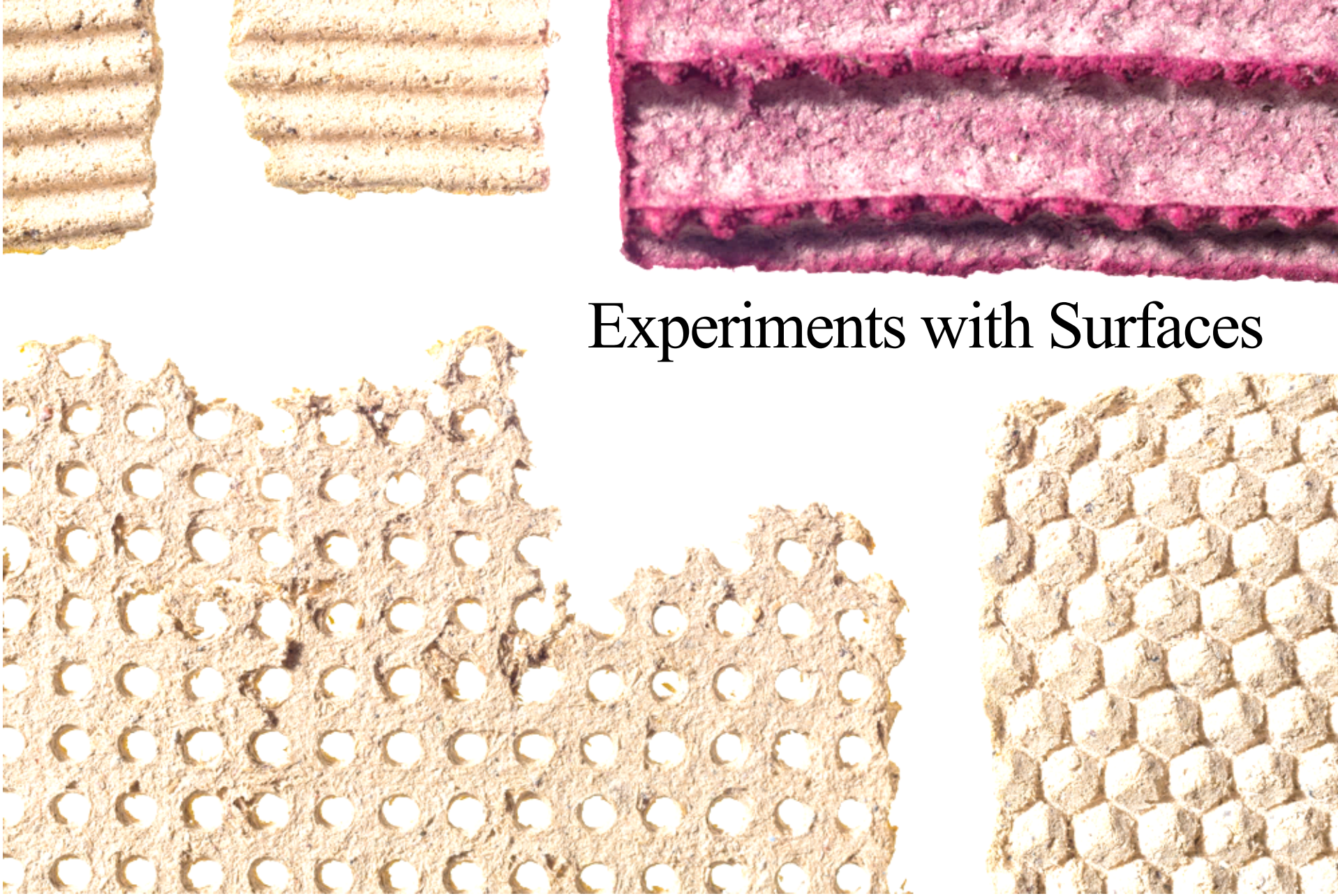

Photo Eeva Suorlahti

From Fine Wood Dust to Coarse Chips

→ *Adjusting material proportions and coarseness*

→ *Scale of the surface*

→ *Visuality of surface texture*

Photo Eeva Suorlahti

Conclusion

Create knowledge how to process material combination by casting

→ Casting not commonplace for wooden materials

→ Additive method

Understand design possibilities

→ Tactile aspects: surface textures, 3D shapes..

→ Visual aspects: dyeing, patterning..

Clarify potential end-use applications for indoor use

→ Wall panels, acoustic / sound directing elements, light weight boards, toys, 3D printed objects, applications in sports industry, jewelry, shoes, disposable applications for indoor gardens, interior decoration products, furnishings or products related to construction industry

Photo Eeva Suorlahti

Thank you!

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