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Research outputs

Penttilä, P. A., Altgen, M., Awais, M., Österberg, M., Rautkari, L., & Schweins, R. (2020). Bundling of cellulose microfibrils in native and polyethylene glycol-containing wood cell walls revealed by small-angle neutron scattering. *Scientific Reports*, 10(1), [20844]. <https://doi.org/10.1038/s41598-020-77755-y>

Altgen, M., Awais, M., Altgen, D., Kyyrö, S., Seppäläinen, H., & Rautkari, L. (2020). Micro-tensile behavior of Scots pine sapwood after heat treatments in superheated steam or pressurized hot water. *Journal of Materials Science*, 55(26), 12621-12635. <https://doi.org/10.1007/s10853-020-04943-6>

Awais, M., Altgen, M., Mäkelä, M., Altgen, D., & Rautkari, L. (2020). Hyperspectral Near-Infrared Image Assessment of Surface-Acetylated Solid Wood. *ACS Applied Bio Materials*, 3(8), 5223-5232. <https://doi.org/10.1021/acsbm.0c00626>

Altgen, M., Awais, M., Altgen, D., Klüppel, A., Mäkelä, M., & Rautkari, L. (2020). Distribution and curing reactions of melamine formaldehyde resin in cells of impregnation-modified wood. *Scientific Reports*, 10, [3366]. <https://doi.org/10.1038/s41598-020-60418-3>

Awais, M., Tanninen, P., Leppänen, T., Matthews, S., Sorvari, J., Varis, J., & Backfolk, K. (2018). A computational and experimental analysis of crease behavior in press forming process. *Procedia Manufacturing*, 17, 835 - 842. <https://doi.org/10.1016/j.promfg.2018.10.135>

Awais, M., Sorvari, J., Tanninen, P., & Leppänen, T. (2017). Finite element analysis of the press forming process. *International Journal of Mechanical Sciences*, 131-132, 767-775. <https://doi.org/10.1016/j.ijmecsci.2017.07.053>

Prizes

1. **PUUMIESTEN foundation - Travel Grant**
Awais, Muhammad (Recipient), 1 Jun 2019
2. **Yrjö ja Senja Koivusen säätiö**
Awais, Muhammad (Recipient), 1 Dec 2019

Projects

Charred wood modification - Kestävä puujulkisivu hiiltämällä

Rautkari, L., Kymäläinen, M., Awais, M., Altgen, D. & Kyyrö, S.
01/08/2017 → 30/06/2019

Wood modification using pressurized hot water

Rautkari, L., Jansson, E., Altgen, M., Kyyrö, S., Belt, T., Awais, M. & Vergara Lourencon, T.
01/09/2017 → 31/08/2021