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Masterarbeit zu vergeben

“IMPACT OF MOLECULAR SIZE OF MODIFIER AGENT TO THE DYNAMIC MECHANICAL PROPERTIES OF TREATED WOOD”

The treatment of wood with water soluble PF resin is a well known and effective method to change in some extends the properties of wood. Effect of treatment with PF resin on the static mechanical properties and dimensional stability have been reported and reviewed (Deka *et al.* 2002; Furuno *et al.* 2004) however, to date there are nearly no any systematic works on the impact of PF resin treatment, as well influence of molecular size of PF resin oligomers on the dynamic mechanical properties of wood that are crucial for wood used as a load bearing and non-load bearing material. Daily the wood could be the subject of dynamic loads; therefore it is significantly to assess the impact of treatment to the mechanical properties. Any substantial reduction in mechanical properties due to treatment will greatly limit the application of modified wood as an engineering material. Besides the dynamic loads wood in wooden constructions are subject to cyclical loads also, where the fatigue life prediction is in great importance.

Within the scope of this thesis, the impregnation of different molecular weight resin oligomers into the beech wood and than *in-situ* polymerization will be done. The impact of oligomer size, weight percent gain on the dynamic mechanical properties will be investigated. The dynamic impact bending (CEAST) and cyclical bending techniques will be used in this thesis.

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