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FEASIBILITY OF GREEN WOOD CUTTING USING ASSISTED PEELING BY INFRARED RADIATION (IR)

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FEASIBILITY OF GREEN WOOD CUTTING USING ASSISTED PEELING BY INFRARED RADIATION (IR)



JOENSUU FORESTRY NETWORKING WEEK



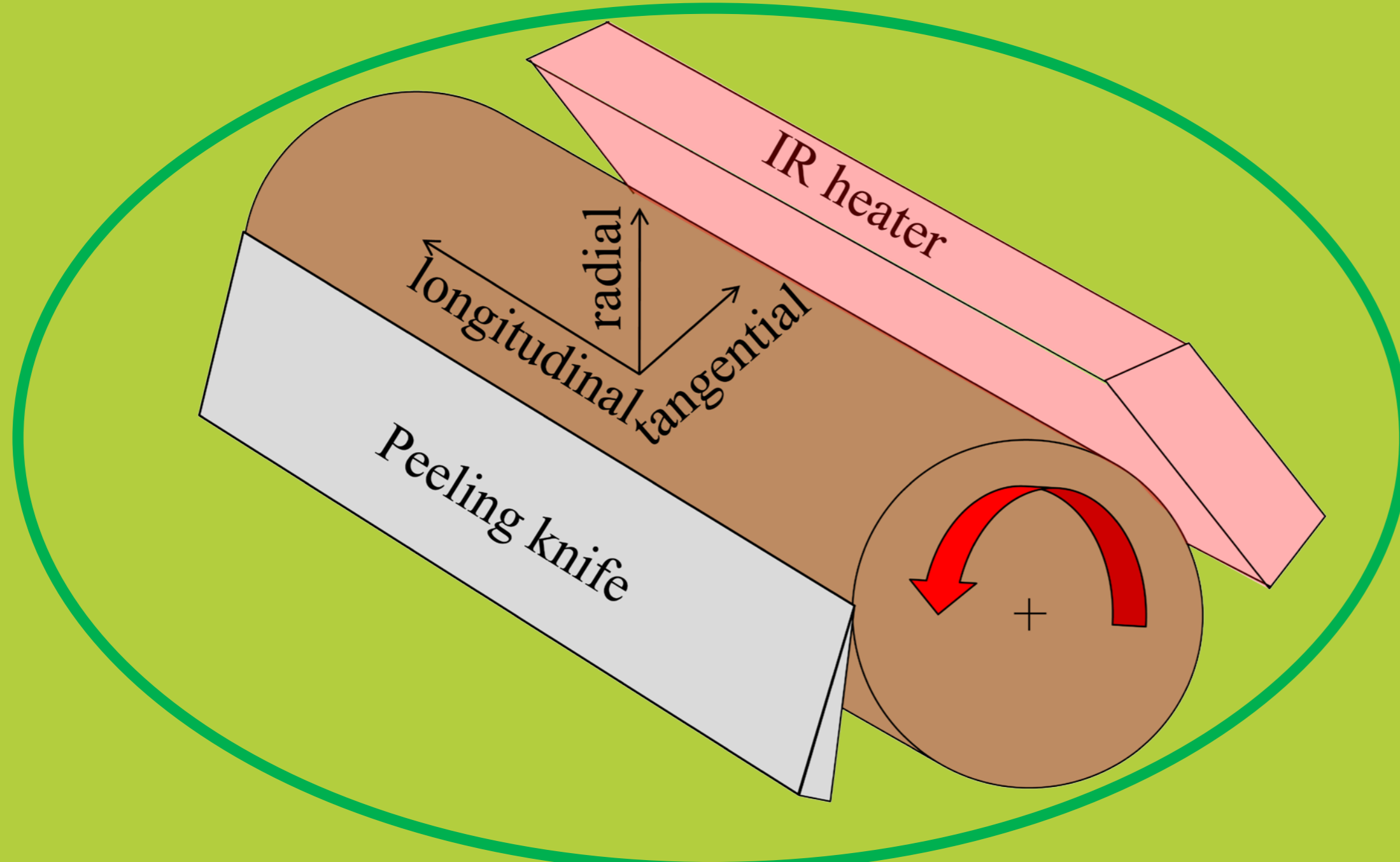
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Avoiding soaking



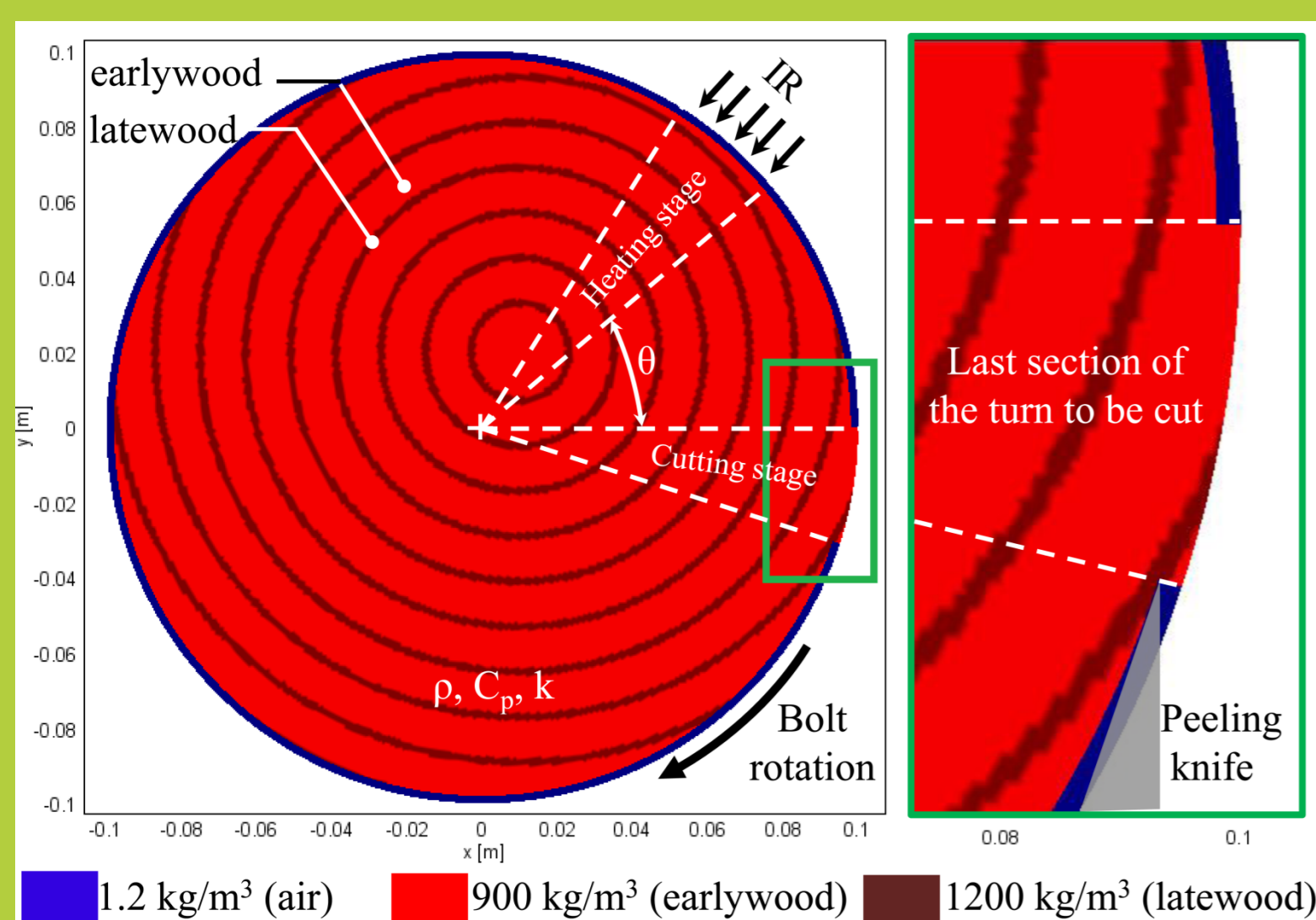
Introduction

Peeling process requires the prior heating of round green-wood at temperatures ranging from 50 to 90 °C. This treatment is necessary to increase wood deformability, to lighten lathe checking into veneers and to reduce cutting forces. It is usually done by immersion into hot water. However it presents many disadvantages among which duration of treatment (12 to 72 hours), washing out of polyphenolic extractibles inducing water pollution and affecting wood natural durability, increasing bolt end splitting threatening bolt cohesion.

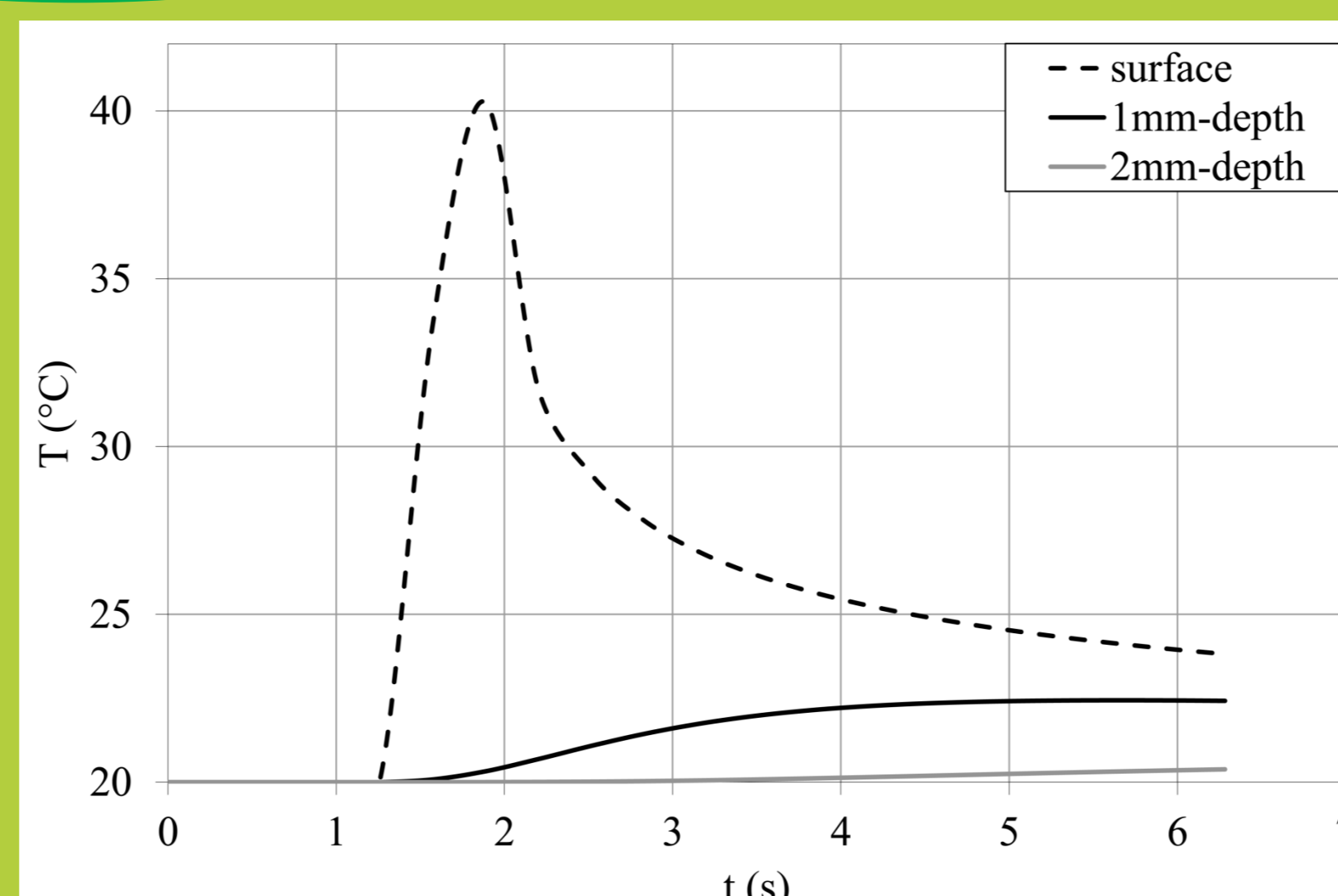


Studying IR heating of green wood

The goal of this PhD thesis is to develop a heating system embedded on the peeling lathe to circumvent many of these disadvantages. The infrared (IR) technology is the most promising solution because of the power it offers and the easiness of integration on the machine. This new technology using radiant energy to heat green-wood prior to peeling would be a major innovation for the industries involved in the production of plywood, LVL, etc.



Modelling IR heat transfer



Results from modelling