



HAL
open science

Measuring green wood thermal properties to simulate veneer production by ir-heating

Anna Dupleix, Andrzej Kusiak, Remy Marchal, Laurent Bleron, Louis Etienne Denaud, Frederic Rossi

► **To cite this version:**

Anna Dupleix, Andrzej Kusiak, Remy Marchal, Laurent Bleron, Louis Etienne Denaud, et al.. Measuring green wood thermal properties to simulate veneer production by ir-heating. IUFRO Conference Division 5 Forest Products, Technical session 5.02.00, Jul 2012, Estoril, Portugal. hal-02100456

HAL Id: hal-02100456

<https://hal.science/hal-02100456>

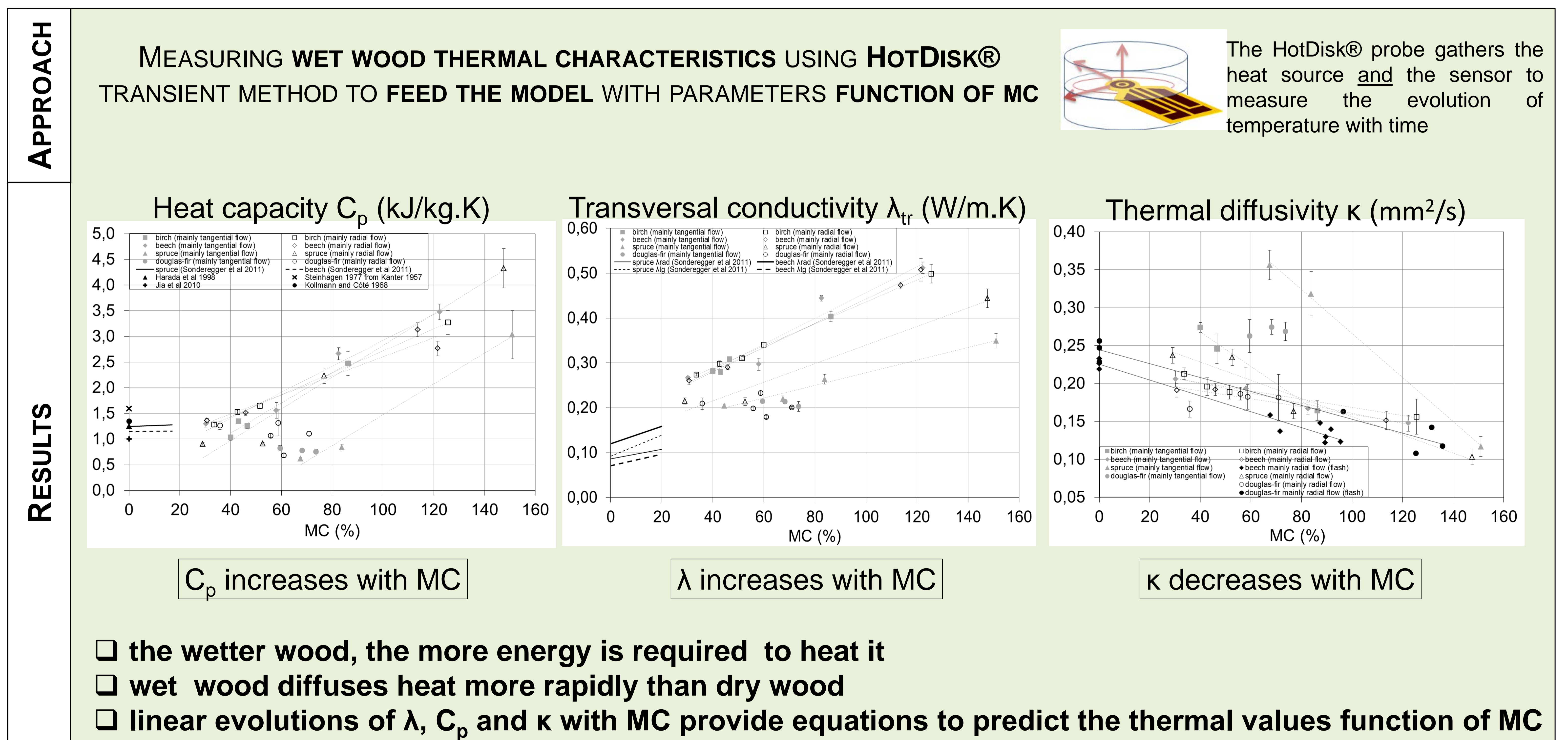
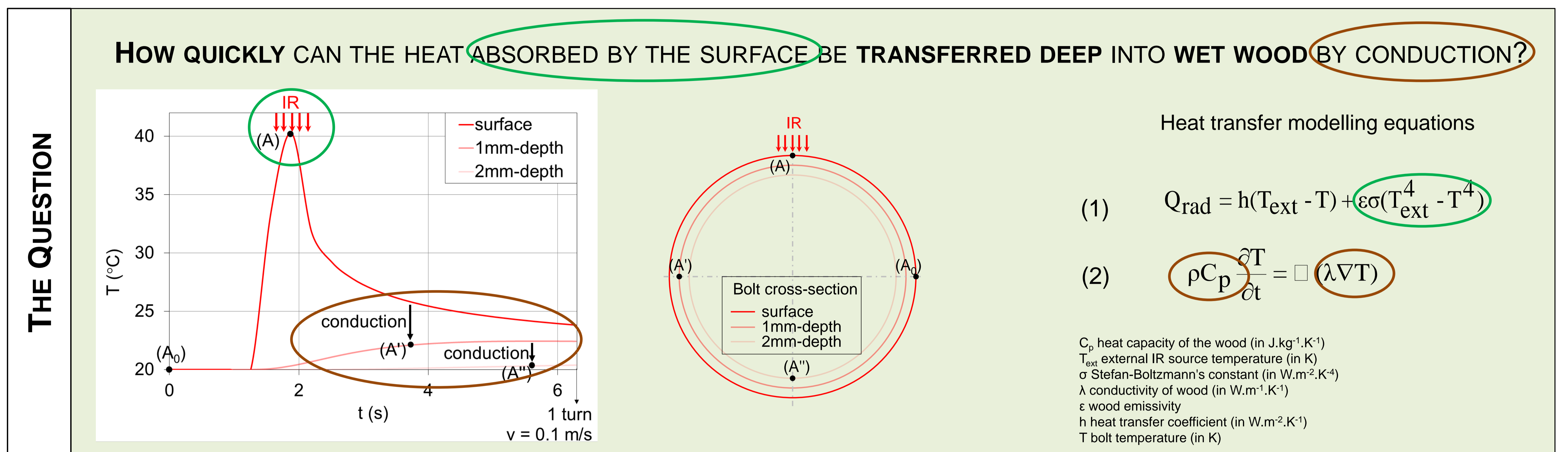
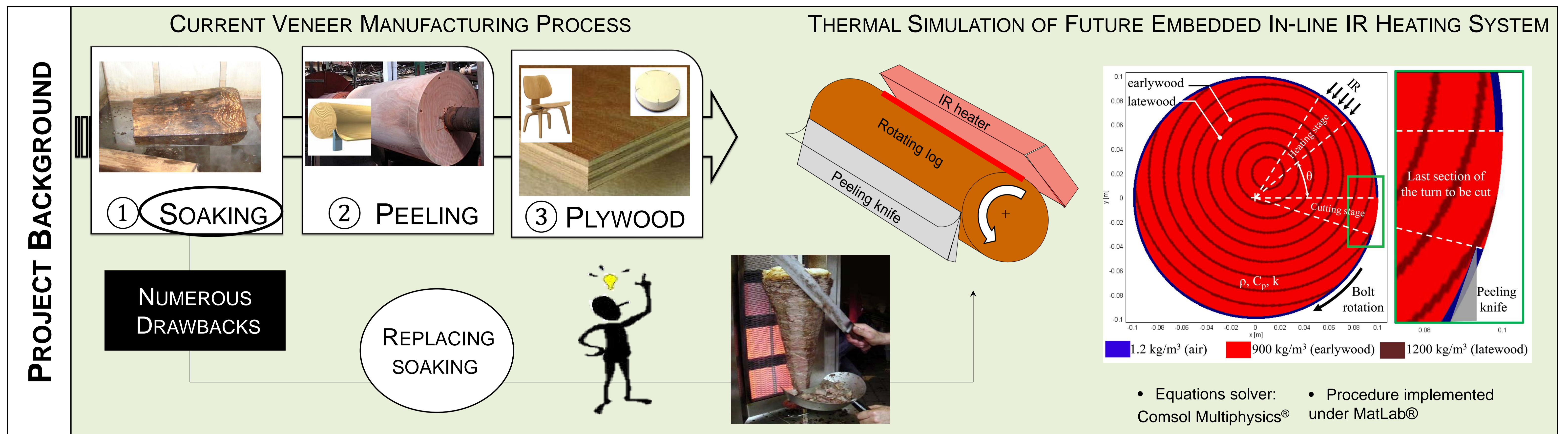
Submitted on 15 Apr 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

MEASURING GREEN WOOD THERMAL PROPERTIES TO SIMULATE VENEER PRODUCTION BY IR-HEATING

DUPLEIX A.¹, KUSIAK A.², MARCHAL R.¹, DENAUD L.¹, BLERON L.¹, ROSSI F.¹



NEXT? To integrate green wood optical properties : emissivity, transmittivity, absorptivity = f(source wavelength) to account for any volumic IR penetration

(1) $Q_{\text{rad}} = h(T_{\text{ext}} - T) - \varepsilon\sigma T^4$ (2) $\rho C_p \frac{\partial T}{\partial t} = \square (k \square T) + I_0 \sum_{\lambda} \beta(\lambda) e^{-\beta(\lambda)r}$ with $I_0 = \sigma T_{\text{ext}}^4$ and β wood absorption coefficient