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# Investigation of the pore structure of native and thermally modified wood using thermoporosimetry

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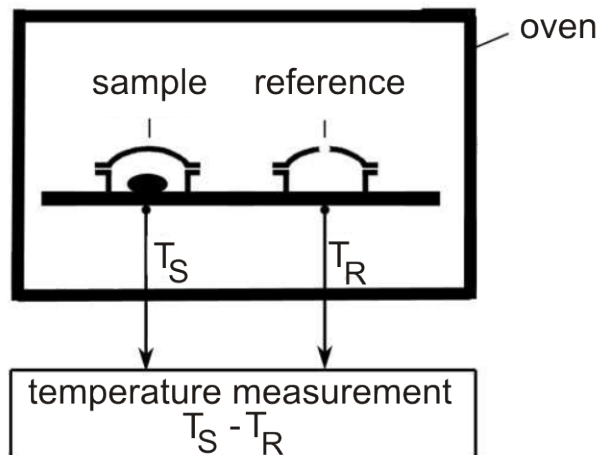
Edinburgh, 24.10.2012



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## Thermoporosimetry

- Operation of the Differential Scanning Calorimetry (DSC),
- Measurement of heat quantities that occur in physical, chemical and biological processes,
- Use of the Phenomenon: melting point depression of frozen water in small "nano" pores.



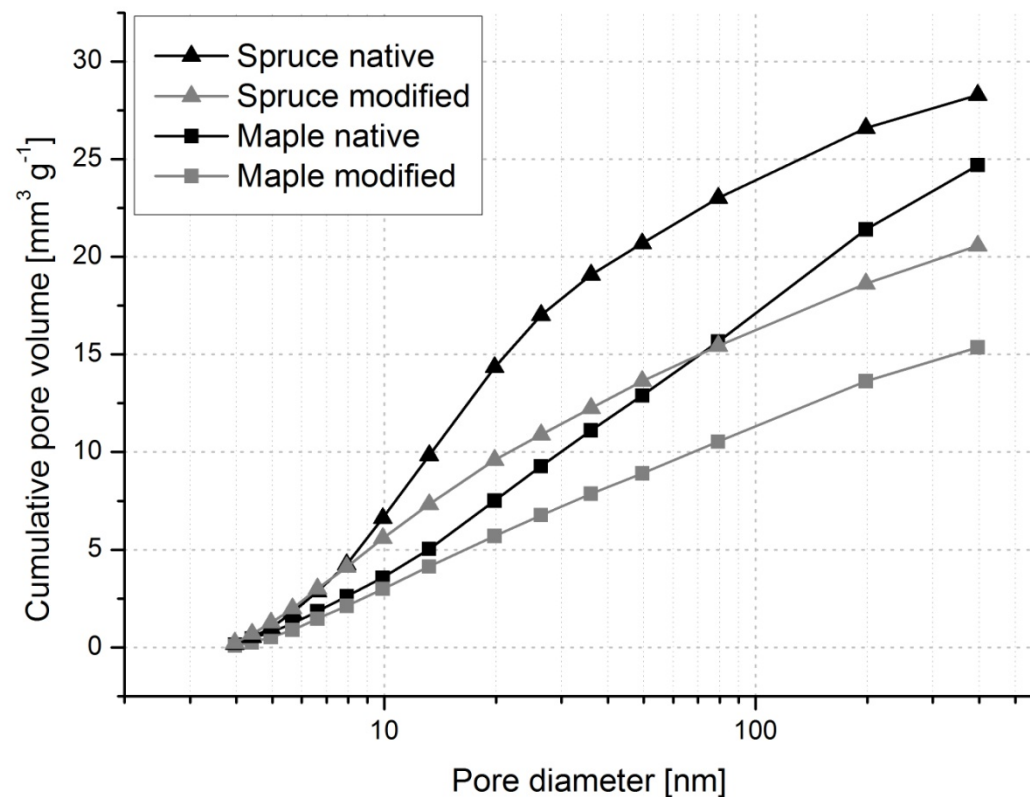
Scheme of measurement setup

$$D = - \frac{4T_m \gamma \cos \theta}{(T_m - T_m(D)) \rho H_f}$$

- $D$  Pore diameter  
 $T_m$  Melting temperature  
 $\gamma$  Surface tension  
 $\theta$  Contact angle  
 $\rho$  Density of water  
 $H_f$  Specific heat of fusion

## Thermoporosimetry

- Alteration of the pore-size distribution of spruce and maple in the „nano“ pore-size range due to thermal modification.



**Thank you for your attention!**

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