

**METÓDA 3D SNÍMANIA A VIZUALIZÁCIE TVAROVÝCH
A ROZMEROVÝCH CHARAKTERISTÍK VÝREZOV
A MODELOVANIA VNÚTORNEJ POLOHY A VEĽKOSTI HRČ
V ICH 3D PRIESTORE**

**METHOD OF 3D SCANNING AND VISUALIZATION OF SHAPE AND
DIMENSIONAL CHARACTERISTICS OF LOG AND MODELLING OF
INTERNAL KNOT LOCATION AND KNOT DIMENSION IN 3D LOG SPACE**

Vladimír Račko – Igor Čunderlík

ABSTRACT

In this article, there was suggested and tested the method of transfer of log shape and log dimensional characteristics into virtual space of computer. Simultaneously, there was suggested the technique of virtual modeling of knot and knot composition in log. Based on comparison of real shapes and virtual models we can say that the method of log shape capture and method of knot modeling structure are fully convenient for experimental investigations. There was suggested a trend of utilization method for modeling of more detail wood structure and its application in wood research.

Key words: 3D space, scanning 3D object, virtual log, knot modeling.

SUMMARY

The aim of this article was suggest and tested the simple method which it will use in research of knot localizations, (their shapes and volumes) in logs in relation to surface indications on bark. The method consists from two parts.

First part is based on transfer of log shape and log dimension into virtual space of computer by digital camera (Canon EOS 350D) and 3D Software Object Modeler 2.1. Software generate 3D mesh of log together with its realistic texture from series of photos takes in according to strictly specified rules.

Second part is based on knot modeling. Real logs are sawn on lumber. Every surfaces are took photo by digital camera. Knot projections and lumber silhouette in photos (raster graphics files) are converted to vector graphics files by software Corel Draw X3. Finally, Vector files are inserted into virtual 3D mesh of log and 3D model of knots are created by using software Rhinoceros 4.0.

Ing. Vladimír Račko, PhD., prof. Ing. Igor Čunderlík, CSc.
Katedra Náuky o dreve, Drevárska fakulta Technickej univerzity vo Zvolene
racko@vsld.tuzvo.sk_igor@vsld.tuzvo.sk