Early registration for NDTE closes Aug. 9; session highlights

Early registration closes **Wednesday, Aug. 9**, for the 20th International Nondestructive Testing and Evaluation of Wood Symposium, which will be held in Madison, Wisconsin, USA, Sept. 12-15, 2017.

The 20th International Nondestructive Testing and Evaluation of Wood Symposium will be hosted by the USDA Forest Service Forest Products Laboratory (FPL) and is co-sponsored by the Forest Products Society (FPS) and the International Union of Forestry Research Organizations (IUFRO). This Symposium is a forum for those involved in nondestructive testing and evaluation of wood, wood-based products, and structures.

Highlights from the substantive program include the following three:

Travelling from Saint Sulpice, Paris, France, is Director of Technologies at Concept Bois Technologie SA, Mr. Yann Benoit who will be presenting **EUCALYPTUS WOOD POLES GRADING USING ULTRASOUND.** Wood poles are largely used around the world to carry power and telecom lines. If species and impregnation of those poles are key factors for overhead networks design, the mechanical properties variability within a same species requires a specific grading to ensure both a reliable design and an extended life time expectancy. This session presents a project led jointly by the National Advanced School of Engineering of Yaounde and CBT SA. The goal was to validate Luxpole—a non-destructive concept using ultrasound to optimize new wood poles grading—on the local Eucalyptus species and ensure the traceability of the measurements.

Nobuyoshi Yamaguchi, of the Building Research Institute in Tsukuba, Japan, will address **DENSITY-BASED EVALUATION METHOD OF DEGRADED TIMBER FOR ISO13822.** ISO 13822-2010 aims to establish assessment of time-dependent reliability of structures. This ISO is also applied for timber structures. Degradation of material and structures is evaluated as degradation of those resistances in the ISO. Quantity-based evaluation is required for the reliability assessment of degraded timber. European Standard EN338 proposes strength class for timbers which consists of strength properties such as bending, tension, compression, shear, MOE, G and density. Characteristic values of the mechanical properties of timber are prepared in proportion with timber densities. As these mechanical properties of new timber, mechanical properties of degraded timber are also in proportion with density. Estimated timber densities by NDT and SDT method are used to predict mechanical properties of degraded timbers. The densities of degraded timber are estimated by the assessment method using withdrawal resistances of probes screwed into timber, which was developed by the author. Learn more about the decreasing rates of mechanical properties of degraded timbers which are proposed, and design values of degraded timbers which are also proposed for structural calculation of degraded existing timber structures.

Houjiang Zhang, professor at Beijing Forestry University will present **ULTRASONIC METHOD FOR EVALUATING WOOD QUALITY OF POPLAR SEEDLINGS**. In China, quality of seedlings is typically evaluated based on physical index such as root-collar diameter, seedling height, root diameter and root length etc.; while wood properties of the seedlings are not taken into consideration. Latest research have shown that wood properties of seedlings such as stiffness and micro-fibril angle are highly heritable and they determine the wood quality of future plantations. Ultrasonic velocity, as a nondestructive measure, is closely related to wood quality and has been recognized as a reliable predictor of stiffness.In this study, we investigated the use of an ultrasonic device as a potential nondestructive tool to monitor and assess the wood quality of poplar (Populus×euramericana cv.'74/76') seedlings, a common plantation species in China. A total of 200 poplar seedling samples were selected and their ultrasonic velocities were measured at four times during the first growth year. Following ultrasonic measurements, 61 seedlings were randomly selected and cut down and the acoustic velocity of each sample was measured using a resonance method. The ultrasonic velocity of the seedlings measured each time was in a normal distribution and it had a strong positive correlation with the number of growth days. The coefficient of determination for the linear relationship between average velocity and growth days was 0.99. No significant correlation was found between ultrasonic velocity and root-collar diameter of the seedlings. Ultrasonic velocity measured on the seedlings was found to have a strong correlation with the velocity of the cut samples measured using resonance method ($R^2=0.81$). The results of this laboratory study indicate that ultrasonic measurement can be used to assess quality traits of young seedlings in future genetic programs.