

Curriculum Vitae

Associate Professor Dr. Juan GUO

Year of Birth: 1985
Research field: Wood anatomy, properties and utilization
Affiliation: Research Institute of Wood Institute,
Chinese Academy of Forestry, Beijing,
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EDUCATION

09/2007 – 07/2012 Ph. D in Polymer Chemistry and Physics, Department of Macromolecular Science, Fudan University, Shanghai, China
09/2003 – 07/2007 B. S. in Packaging Engineering, College of Materials Science and Engineering, Zhengzhou University, Zhengzhou, China

EMPLOYMENT EXPERIENCE

06/2018 – present Associate Professor, Department of Wood Anatomy and Utilization, Research Institute of Wood Industry, Chinese Academy of Forestry
07/2012 – 06/2018 Assistant Professor, Department of Wood Anatomy and Utilization, Research Institute of Wood Industry, Chinese Academy of Forestry

INTERNATIONAL RESEARCH EXPERIENCE

11/2019 - Deputy Coordinator in IUFRO 5.06.00 “Properties and utilization of plantation wood”
10/2019 - Secretary-General of Redwood Association (raise), China National Forest Products Industry Flssoication
05/2019 Assistant to the IAWA-IUFRO International Symposium: Challenges and Opportunities for Updating Wood Identification, Beijing, China
11/2015 Assistant to the conference organization of the 10th Joint Seminar of China-Korea-Japan on Wood Quality and Utilization of Domestic Species, Lin’an, China
08/2013 Assistant to the conference organization of the Identification of Timber Species and Origins Regional Workshop for Asia-Pacific, Beijing, China
01/2017 - present Engaged in Executive Secretary Office of IAWA (International Association of Wood Anatomists) Beijing Office

11/2018 – 2019/11	Member of International Society of Wood Science and Technology (SWST)
05/2014 - present	Member of International Association of Wood Anatomists (IAWA)
09/2019 – 11/2019	Visiting scholar, reversible/irreversible structural variations in waterlogged archaeological wood upon dehydration-hydration: the role of cellulose deterioration, Institute of Physics and Materials Science, University of Natural Resources and Life Sciences (BOKU), Austria (Prof. Helga Lichtenegger)
06/2016 – 09/2016	Visiting scholar, viscoelasticity of plantation wood after hygro-mechanical steam treatment, Innventia AB, Sweden (Prof. Lennart Salmén)
03/2015 – 06/2015	Post-doctoral research, cellulose crystallites structure in plantation wood studied by small- and wide-angle X-ray scattering, Institute of Physics and Materials Science, University of Natural Resources and Life Sciences (BOKU), Austria (Prof. Helga Lichtenegger)

RESEARCH PROJECTS

01/2019 – 12/2023	Key Member, Project: Interaction and modification of multi-scale structures of wood, Chinese National Natural Science Foundation (no. 31890772)
01/2018 – 12/2020	Leader, Project: Structures of waterlogged archaeological wooden artifacts and the consolidation mechanism, Fundamental Research Funds for the Central Non-profit Research Institution of CAF (no. CAFYBB2018QB006)
07/2017 - 12/2020	Key Member, Project: Influences of wood cell wall modification on the properties, National Key Research and Development Program of China (no. 2017YFD0600202)
01/2017 – 12/2019	Leader, Project: Mechanism in the hygroexpansion of dehydrated archaeological wood exposed to sinusoidally varying humidity, Chinese National Natural Science Foundation (no. 31600450)
01/2014 – 12/2017	Key Member, Project: Response mechanism of wood cell walls to hydro-thermo and compression treatment, Chinese National Natural Science Foundation (no. 31370559)
05/2013 - 05/2015	Leader, Project: Cellulose nanocrystals isolated from planted Chinese fir, Fundamental Research Funds for the Central Non-profit Research Institution of CAF (no. CAFYBB2018QB006)

LECTURES FOR GRADUATED STUDENTS

09/2015 – present	Wood Cell Wall Structure and Property in Wood Anatomy Lecture for Master and PhD students, Chinese Academy of Forestry
11/2019	FTIR imaging in Principle & Method of Material Analysis Lecture for Master and PhD students, Chinese Academy of Forestry

PUBLICATIONS

- 1) Han L., Tian X., Zhou H., Yin Y., **Guo J.*** (2019) The influences of the anatomical structure and deterioration state of wood from a Qing dynasty shipwreck on wood color after the consolidation treatment. *Journal of Southwest Forestry University*, 2020, 40(1): 1–7.
- 2) Zhao Y., Zhao X., Iida I., **Guo J.*** (2019) Studies on pre-treatment by compression for wood impregnation II: the impregnation of wood compressed at different moisture content conditions. *Journal of Wood Science*, 65, 28.
- 3) **Guo J.#**, Xiao L.#, Han L., Wu H., Yang T., Wu S., Yin Y.* (2019) Deterioration of cell wall in waterlogged wooden archaeological artifacts, 2400 years old. *IAWA Journal*, 2019, 40(4): 820-844.
- 4) Zhao Y., Wang Z., Iida I., **Guo J.*** (2018) Studies on pre-treatment by compression for wood impregnation I: effects of compression ratio, compression direction, compression speed and compression-unloading place on the liquid impregnation of wood. *Journal of Wood Science*, 64(5): 551-556.
- 5) **Guo J.#**, Zhou H., Stevanic J.S., Dong M., Yu M., Salmén L.* , Yin Y. (2018) Effects of Aging on the Cell Wall and Its Hygroscopicity of Wood in Ancient Timber Construction. *Wood Science and Technology*, 52(1): 131-147.
- 6) **Guo J.#**, Guo X.#, Xiao F., Xiong C., Yin Y.* (2018) Influences of Provenance and Rotation Age on Heartwood Ratio, Stem Diameter and Radial Variation in Tracheid Dimension of *Cunninghamia lanceolata*. *European Journal of wood and wood products*, 76: 669-677.
- 7) **Guo J.**, Du W., Wang S., Yin Y.* , Gao Y*. (2017) Cellulose nanocrystals: a layered host candidate for fabricating intercalated nanocomposites. *Carbohydrate Polymers*, 157: 79-85.
- 8) **Guo J.**, Yin J., Zhang Y., Salmén L.* , Yin Y*. (2017) Effects of Thermo-Hygro-Mechanical (THM) treatment on the viscoelasticity of *in-situ* lignin. *Holzforschung*, 71(6): 455-460.
- 9) **Guo J.**, Du W., Gao Y., Cao Y., Yin Y*. (2017) Cellulose nanocrystals as water-in-oil Pickering emulsifiers via intercalative modification. *Colloids and Surfaces A Physicochemical & Engineering aspects*, 529: 634-642.
- 10) Du W., **Guo J.***, Li H., Gao Y.* (2017) Heterogeneously modified cellulose nanocrystals stabilized Pickering emulsion: preparation and their template application for the creation of PS microspheres with amino—rich surfaces. *ACS Sustainable Chemistry & Engineering*, 5(9): 7514-7523.
- 11) **Guo J.**, Guo X., Wang S., Yin Y*. (2016) Effects of ultrasonic treatment during acid hydrolysis on the yield, particle size and structure of cellulose nanocrystals. *Carbohydrate Polymers*, 135: 248-255.
- 12) **Guo J.**, Rennhofer H., Yin Y.* , Lichtenegger H*. (2016) The influence of thermo-hygro-mechanical treatment on the micro- and nanoscale architecture of wood cell walls using small- and wide-angle X-ray scattering. *Cellulose*, 23(4): 2325-2340.
- 13) **Guo J.**, Fu K., Zhang Z., Yang L., Huang Y., Huang C., Zhu L.* , Chen D*. (2016) Reversible thermochromism via hydrogen-bonded cocrystals of polydiacetylene and melamine. *Polymer*, 105: 440-448.
- 14) **Guo J.#**, Song K.#, Salmén L.* , Yin Y*. (2015) Changes of wood cell walls in response to hygro-mechanical steam treatment. *Carbohydrate polymers*, 115: 207-214.

- 15) Guo X., **Guo J.***, Yin Y. (2015) Preparation and properties of cellulose nanocrystals from juvenile and mature wood of Chinese fir. *Journal of Northeast Forestry University*, 43(10), 103-108.
- 16) Guo X., **Guo J.***, Lu Y., Yin Y., Li G. (2015) Control and detection of cellulose nanocrystals (CNC) size distribution. *China Wood Industry*, 29(4), 22-25.
- 17) **Guo J.**, Yang L., Zhu L.* , Chen D*. (2013) Selective detection of metal ions based on nanocrystalline ionochromic polydiacetylene. *Polymer*, 54: 743-749.
- 18) **Guo J.**, Chen D. (2012) Melamine/stearic acid composite nanowires and vesicles with an intercalated nanostructure prepared through NCCM method. *Chinese Journal of Chemical Physics*, 25(6): 708-712.
- 19) **Guo J.**, Zhu L., Jiang M., Chen D. (2011) Deliberately designed processes to physically tether the carboxyl groups of poly (pentacosadiynoic acid) to poly (vinyl alcohol) glassy matrix to make poly (pentacosadiynoic acid) thermochromically reversible in the matrix. *Langmuir*, 27(11): 6651-6660.
- 20) Yin Y., Jiang X., Yuan L., Jiao L., Dong M., Liu B., **Guo J.** et al. *Identification Manual of Endangered and Precious Timber Species Common in Trades*. Beijing: Science Press, 2016, pp. 1-166. ISBN 978-7-03-048881-7
- 21) Yu M.#, Jiao L.#, **Guo J.**, Wiedenhoef A. C., He T., Jiang X., Yin Y. (2017) DNA barcoding of vouchered xylarium wood specimens of nine endangered *Dalbergia* species. *Planta*, 246: 1165-1176.
- 22) He T., Jiao L., Yu M., **Guo J.**, Jiang X., Yin Y.* (2019) DNA barcoding authentication for the wood of eight endangered *Dalbergia* timber species using machine learning approaches. *Holzforschung*, DOI: 10.1515/hf-2018-0076
- 23) Zhang M., Zhao G., Liu B., He T., **Guo J.**, Jiang X., Yin Y.* (2019) Wood discrimination analyses of *Pterocarpus tinctorius* and endangered *Pterocarpus santalinus* using DART-FTICR-MS coupled with multivariate statistics. *IAWA Journal*, DOI: 10.1163/22941932-40190224
- 24) Du W., Deng A., **Guo J.**, Li H., Gao Y.* (2019) An injectable self-healing hydrogel-cellulose nanocrystals conjugate with excellent mechanical strength and good biocompatibility. *Carbohydrate Polymers*, 223: 115084.
- 25) Han L., Wang K., Wang W., **Guo J.**, Zhou H.* (2019) Nanomechanical and topochemical changes in elm wood from ancient timber constructions in relation to natural aging. *Materials*, 12(5): 786
- 26) Zhang M., Zhao G., **Guo J.**, Wiedenhoef A.C., Liu C.C. Yin Y.* (2019) Timber species identification from chemical fingerprints using direct analysis in real time (DART) coupled to Fourier transform ion cyclotron resonance mass spectrometry (FTICR-MS): comparison of wood samples subjected to different treatments. *Holzforschung*, 73(11): 975-985.
- 27) Shao F., Zhang L., **Guo J.**, Liu X., Ma W., Wilson I., Qiu D.* (2019) A comparative metabolomics analysis of the components of heartwood and sapwood in *Taxus chinensis* (Pilger) Rehd. *Scientific Reports*, 9: 17647.

ACTIVE PARTICIPATION AT CONFERENCES

- 1) **Guo J.**, Jiao L., Li Shan et al. Wood collection of Chinese Academy of Forestry: overview of wood identification and cell wall structures in the past 10 years. Rish Symposium “Wood Culture and Science 18”, January 2019, Kyoto, Japan
(**Oral presentation**)

- 2) **Guo J.**, Yang Tao, Yin Y. Cell wall properties of waterlogged archaeological wooden artifacts, 2400 years ago. 2018 SWST/JWRS International Convention: Era of a Sustainable World - Tradition and Innovation for Wood Science and Technology, November 2018, Nagoya, Japan (**Oral presentation**)
- 3) **Guo J.**, Yin J. Rennhofer H. Cell wall properties of wood after the Thermo-Hygro-Mechanical (THM) treatment. The 4th International Congress on Planted Forests, October 2018, Beijing, China (**Oral presentation**)
- 4) **Guo J.**, Xiao L., Han L. et al. Deterioration of cell wall in waterlogged wooden archaeological artifacts, 2400 years old. The 2nd Chinese Archaeological Congress, October 2018, Chengdu, China (**Oral presentation**)
- 5) **Guo J.**, Rennhofer H., Lichtenegger L. C. et al. The influence of thermo-hygro-mechanical treatment on the micro- and nanoscale architecture of wood cell walls using small- and wide-angle X-ray scattering. 2017 Global Conference on Polymer and Composite Materials, May 2017, Guangzhou, China (**Oral presentation**)
- 6) **Guo J.**, Zhou H., Dong M. et al. Changes in chemical structure and water vapour adsorption-desorption behavior of archeological Populus wood aged 833±29 BP of Jinci Temple. The 3rd seminar of IAWA, China Group, November 2016, Kunming, China (**Oral presentation**)
- 7) **Guo J.**, Rennhofer H., Morookac T. et al. The changes of cellulose crystallites in wood cell wall to Thermo-Hygro-Mechanical treatment. The 10th Joint Seminar of China-Korea-Japan on Wood Quality and Utilization of Domestic Species. November 2015, Lin'an, China (**Oral presentation**)