

04-03: MD Dating – Dating of wood based on its molecular decay (MD) measured using FTIR spectroscopy

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Across several academic fields dating wood is of utmost importance. Currently, there are two different approaches being applied for dating purposes: dendrochronology and radiocarbon dating. The latter was the last advancement in this field in the 1950s. The presentation gives a summary of the development of an innovative method as well as the introduction into first models. The chemical composition of wood alters over time. Infrared spectroscopy is used to observe these changes and subsequently, enables their analysis with a regression model. Separate models were established for spruce, larch, fir and oak including an Austrian sample set of living trees and timber, as well as construction wood and waterlogged subfossil wood. The influence of highly saline preservation conditions will be discussed. The models cover a time span up to 3000 years. ATR-FTIR spectroscopy has been used to detect the molecular decay, random forests were applied for statistical modelling.