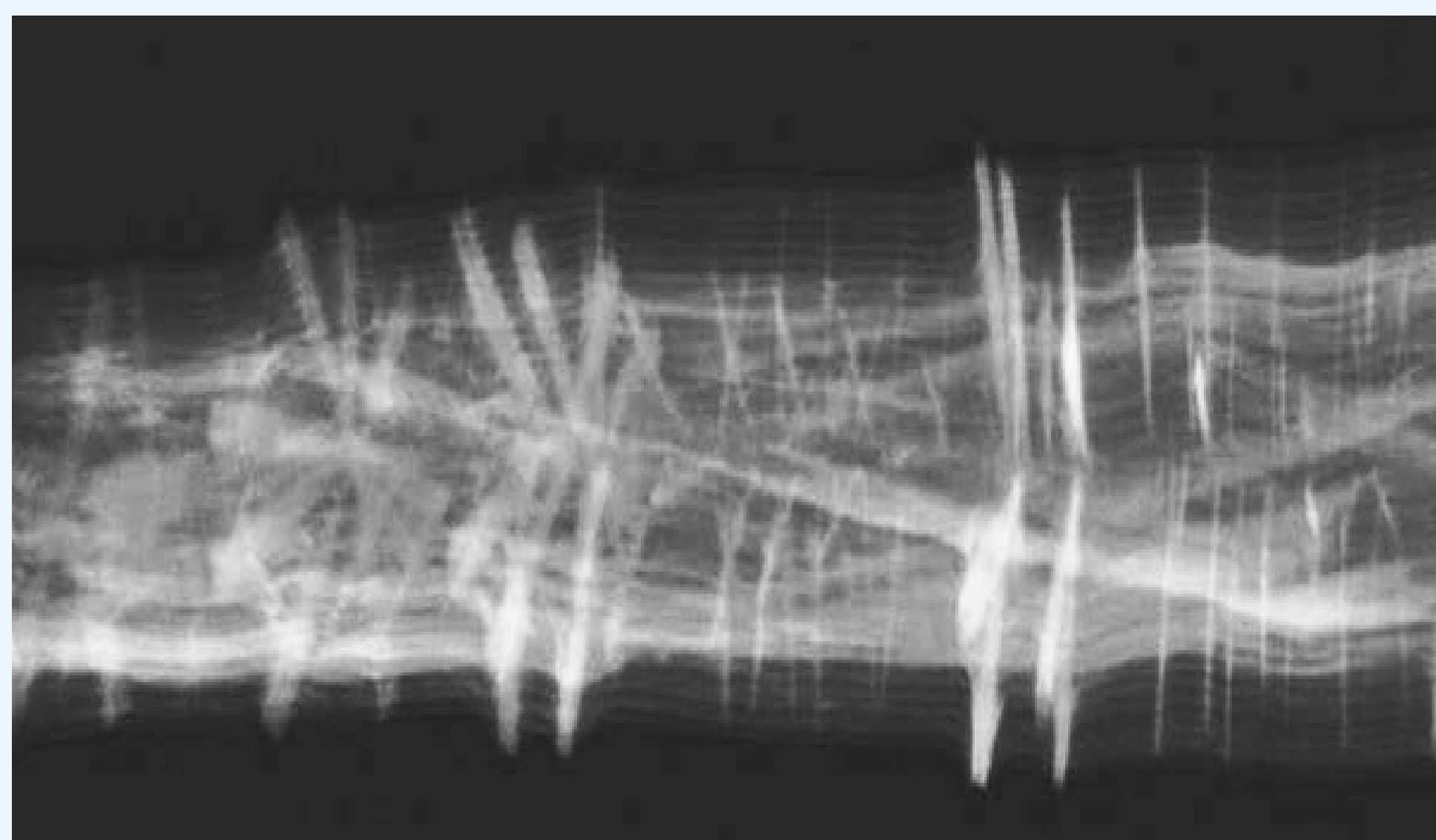
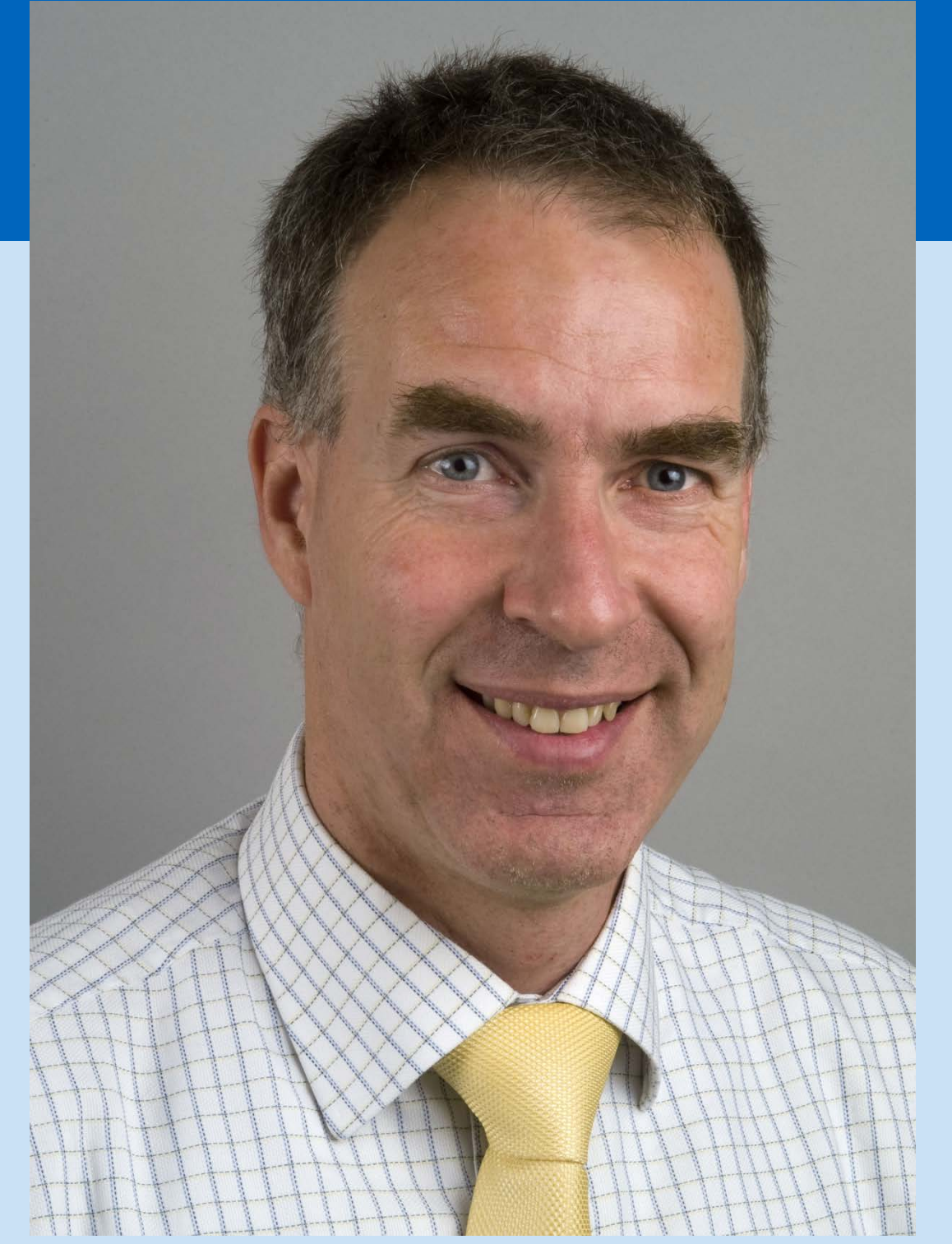


Wood Technology

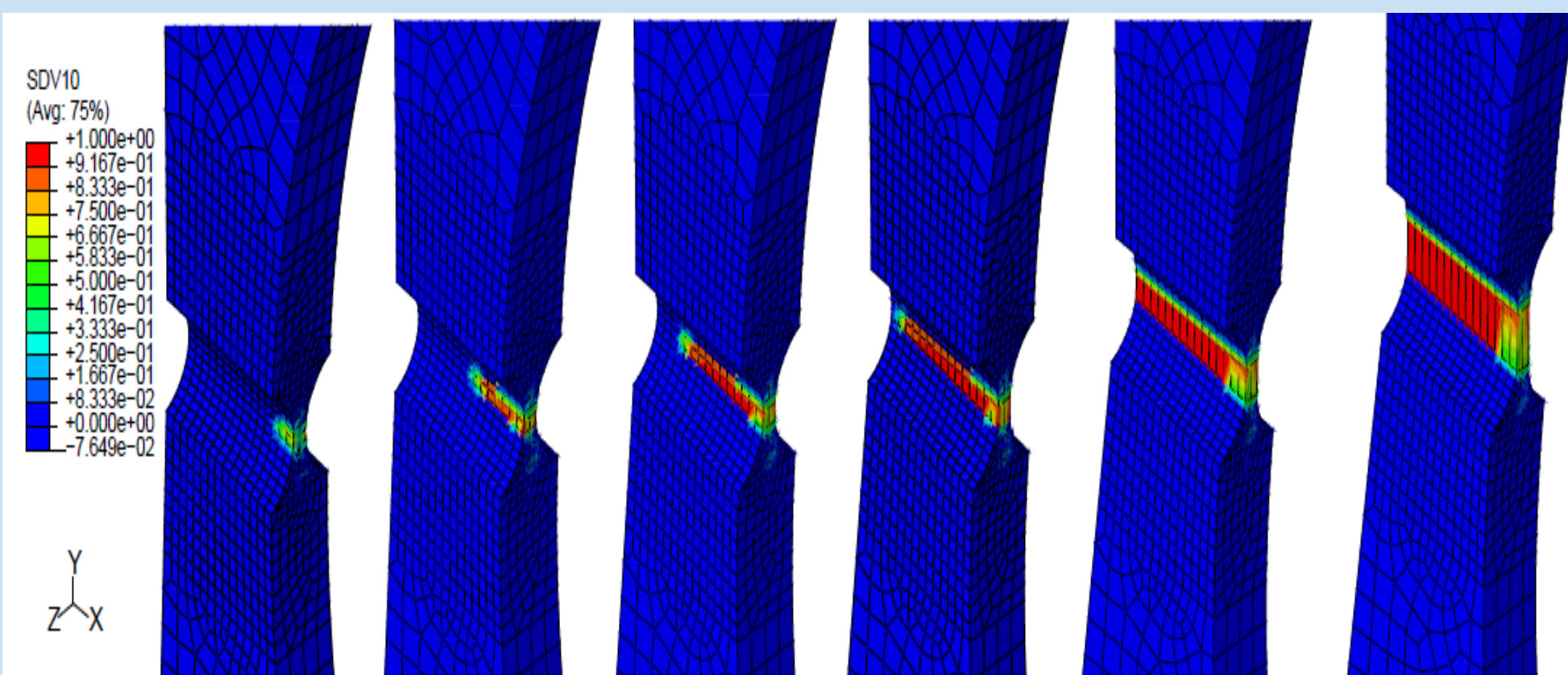
Prof.dr.ir. J.W.G. van de Kuilen
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Civil, Geo and Environmental Engineering



Research focus

Wood technology focuses on the physics of wood, the conversion processes of wood into industrially manufactured building products, and the performance of these products during their service life.

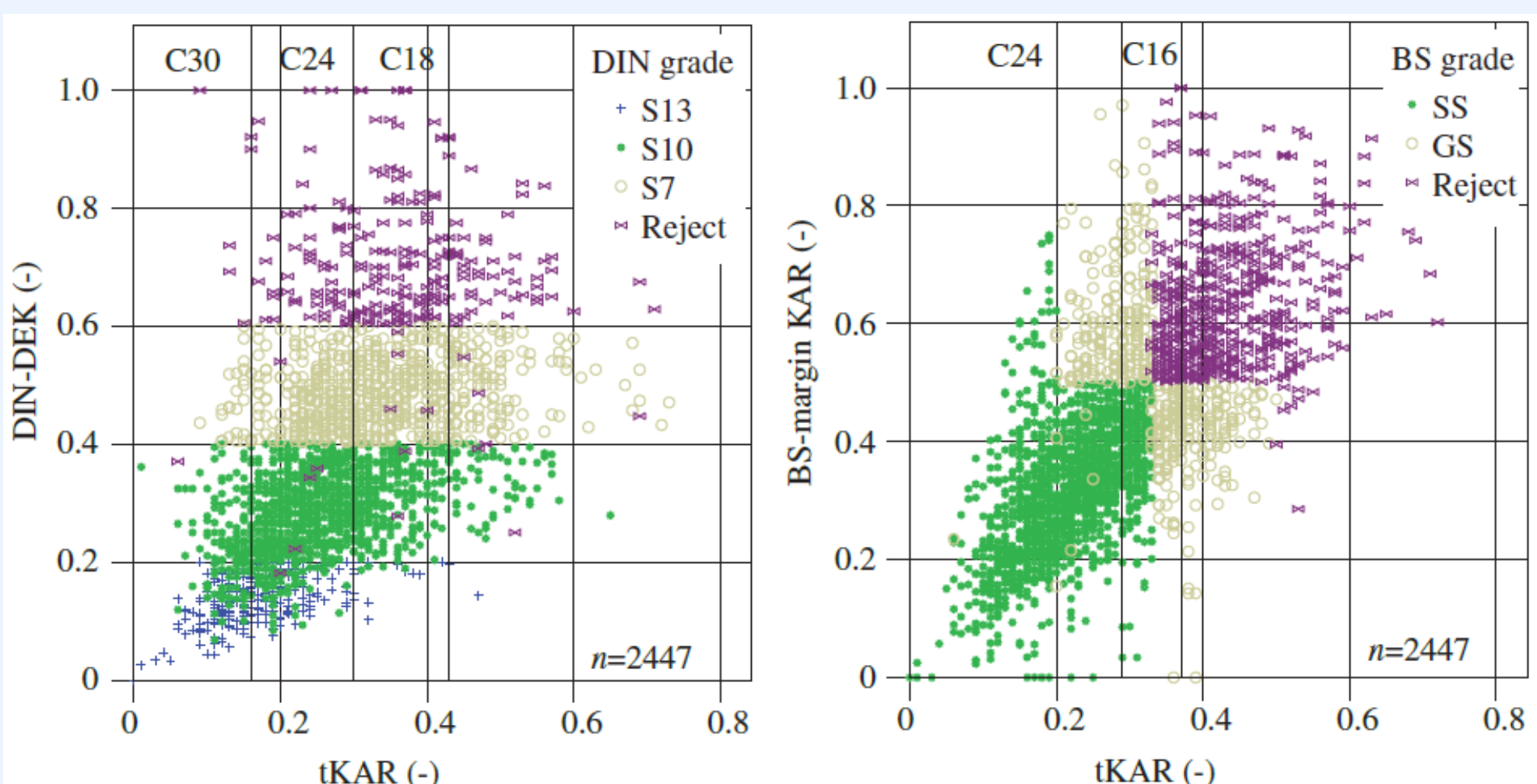
Developing and adaptation of material science aimed at understanding mechanical and physical behaviour of wood with a key aspect on grading and qualification processes and the long term behaviour of wood and wood products.



Material science

- Development of Non-Destructive assessment techniques for wood property prediction
- Forest-Wood chain optimization
- FEM analysis and development of models for wood materials

- Reaction kinetics modelling of time-dependent behaviour
- Creep-relaxation and time to failure analysis
- Development of damage models



Engineering properties

- Advanced statistical methods are applied to capture natural variations in material properties for engineering purposes
- Wood scanning technologies
- Development of test procedures and international comparisons

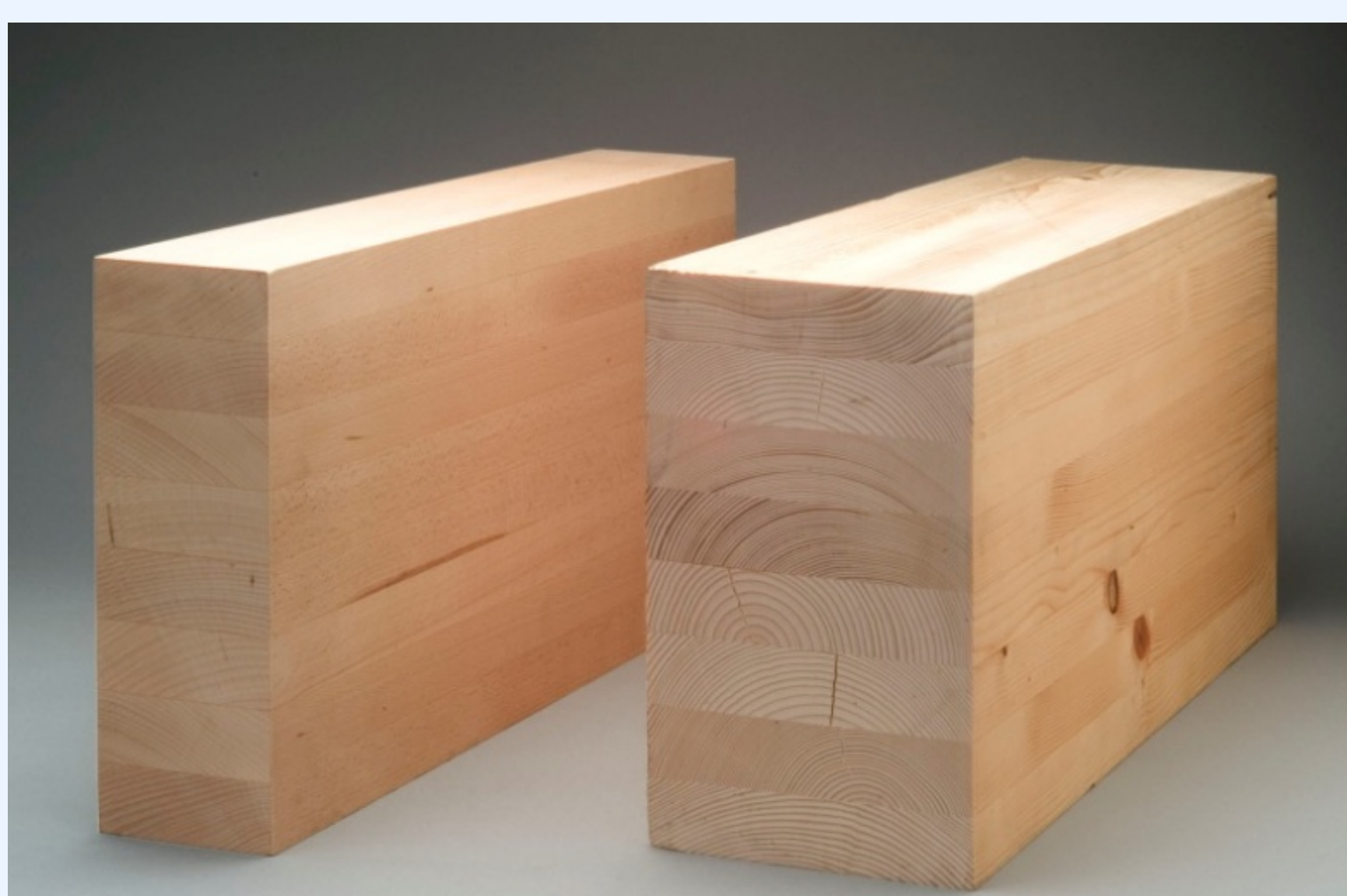
- Development of grading machines and grading procedures
- Visual, Ultrasound, Vibration and X-Ray analysis
- Reliability analysis of wood and wood-based products including quality control



Reaction kinetics for service life analysis

- Analysis and assessment of wood and structural quality
- Valuation and assessment of existing structures
- Development of damage models using reaction kinetics based approach

- Residual strength analysis and prediction of service life
- Non-Destructive in-situ analysis using vibration and ultrasound techniques



Adhesives performance

- Wood adhesives are essential for modern engineered wood products
- Changes in forest management leads to new species for which gluing technology needs to be developed

- Mechanical performance and durability of PRF, MUF, PU and EPI adhesives
- Natural wood glues
- Microscopic imaging, rheology measurements and Digital Image Correlation techniques