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Plant cell wall mechanics at the
intersection of development and
drought resistance

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Plant cell walls surround all plant cells and form together with the plasma membrane the interface between plants and their environment. A large amount of research has resulted in profound knowledge regarding perception of chemical stimuli and adaptive changes in plant metabolism, underlying plant adaptation to a changing environment. In contrast knowledge regarding in vivo changes of physical characteristics of plant cells and tissues during development and adaptation to a changing environment is still limited. An important reason for that is the small number of technologies enabling such studies. We have built a Brillouin microscope, which allows studies of mechanical characteristics in vivo in a label free manner with sub-cellular resolution and in sub-epidermal cell layers. We are using it to study how viscosity and stiffness change in the root of *Arabidopsis thaliana* during development and in response to hyperosmotic stress. I will provide both an overview of our current knowledge and some insights into our use of the technology in an ERC Synergy project aiming to understand water perception in plants.

Host: RIGeL Graduate Colloquium
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