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Multiscale modelling of Leaf

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Abstract: Visualization of a leaf reveals distinct patterns, primarily comprised of vein architecture and mesophyll distribution. An attempt is made to model the vein and mesophyll arrangements. Drawing an analogy between the diagram of leaf veins enclosing the mesophyll region, a configuration of resistors arranged in a closed loop, with an additional series arrangement of inductors is made. This geometry provides a conceptual framework for understanding food transport in leaf. Based on the architectures a model is proposed with RL networks. From UV-visible spectroscopy two absorption bands are observed and attributed to two bandgaps.