Supplementary Material – Correlating Synthesis Parameters to Morphological Entities: Predictive Modeling of Biopolymer Aerogels

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The predictions of the proposed constitutive model, versus the experimental data of calcium thiocyanate (CT) based cellulose aerogels, are compared with the predictions of the previous model, versus the same data, published in Rege et al. [1] (see Figure S1). It is seen that the curve from the model predictions now is in much better agreement, qualitatively as well as quantitatively, with the experimental data than the previous model. The effect of introducing the axial component to the strain energy function is hereby visible.

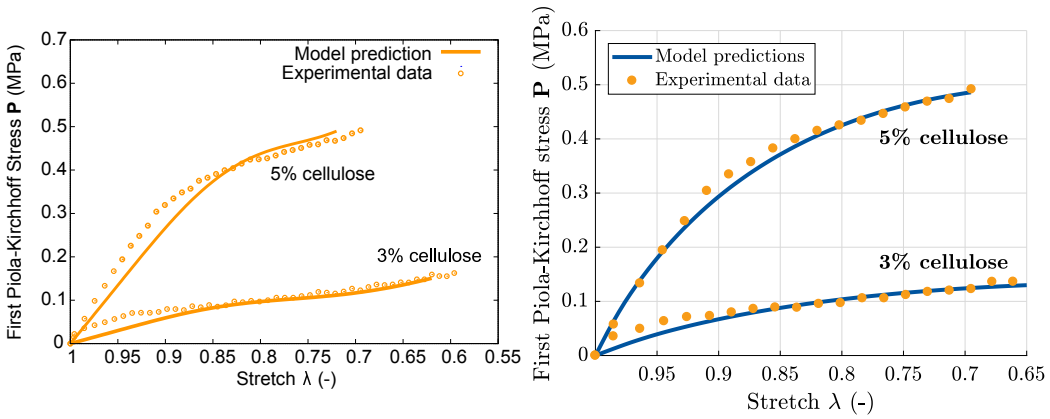

Figure S1. (**Left**): predictions of the previous bending based model vs. experimental data of CT based cellulose aerogel (reproduced from [1] with permission from the Royal Society of Chemistry). (**Right**): predictions of the newly proposed model (accounting for the bending as well as the compression contributions to the strain energy function) vs. the same experimental data of CT based cellulose aerogel

[1] Rege, A.; Schestakow, M.; Karadagli, I.; Ratke, L.; Itskov, M. Micro-mechanical modelling of cellulose aerogels from molten salt hydrates. *Soft Matter* **2016**, *12, 7079-7088.*