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Size Effects in the Mechanical Behavior of Sparsely Cross-Linked Fiber Networks ALI SHAHSAVARI, CATALIN PICU, Rensselaer Polytechnic Institute — Random fiber networks are structural elements in many biological and man-made materials and the prediction of their mechanical properties is desirable in many applications. In this work we first address the problem of the scale of homogeneity of these discrete systems, i.e. the size of the model above which the elastic response is model size- independent. Further, using models large enough to eliminate the size effect, we determine a structure-property relation for networks with variable concentration of cross-links.

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