Supplementary Information for "A quantitative study of the effect of flow on the photopolymerization of fibers"

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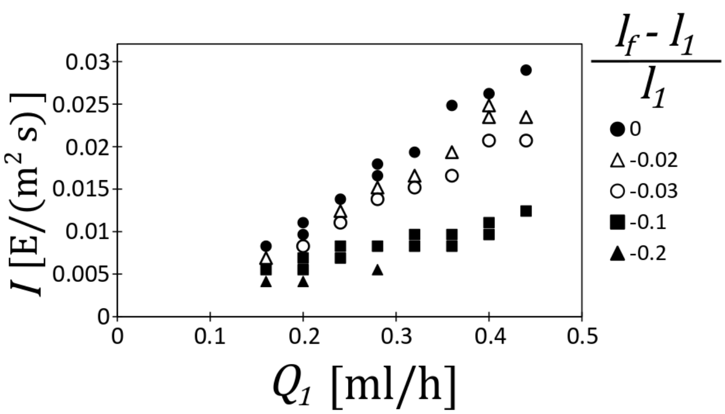

Figure S1: **Intensity as a function of flow rate for fibers produced with lengths of equal relative deviations from l_1.** The intensity I required to produce fibers with equal fractional deviations relative to l_1 varies linearly with flow rate Q_1. The slopes decrease with larger negative deviations from l_1. These linear relationships support our conclusion that the difference between the fiber's length l_f and l_1 can be used to indicate its relative degree of polymerization and rigidity.

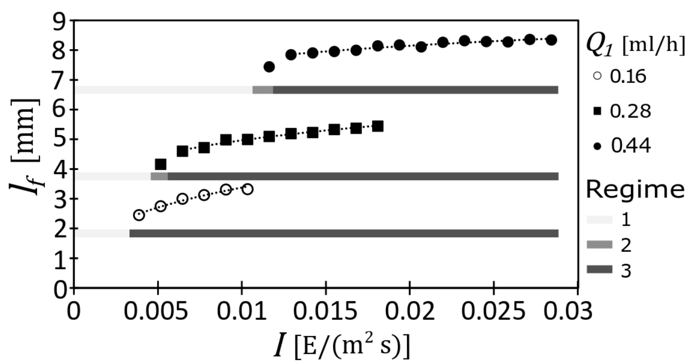

Figure S2: **Fiber length as a function of intensity for varying flow rates.** Each regime of fiber production is represented by a bar with a different grayscale intensity, and corresponds to the data points directly above it (see color code and refer to Figure 6 in the main text). As Q_1 increases, the three regimes of fiber production spread out, becoming disproportionately large. This behavior can be seen most easily in the nonlinear growth of the first regime of fiber production, represented as the lightest gray bars. It can also be observed in the appearance of the transitional second regime of fiber production, which was not observed in the fiber samples produced with the lowest Q_1, but became apparent as Q_1 was increased. The data within the third regime of fiber production for each flow rate was fit with a power function (using least squares regression), represented by the dotted lines, of the form $l_f = cI^n$, where c is a prefactor and n is the power law exponent. Both c and n vary with Q_1. For $Q_1 = 0.16$ ml/h, $n = 0.32$ and the coefficient of determination $R^2 = 0.9767$. For $Q_1 = 0.28$ ml/h, $n = 0.16$ and $R^2 = 0.9793$. For $Q_1 = 0.44$ ml/h, $n = 0.083$ and $R^2 = 0.9356$.

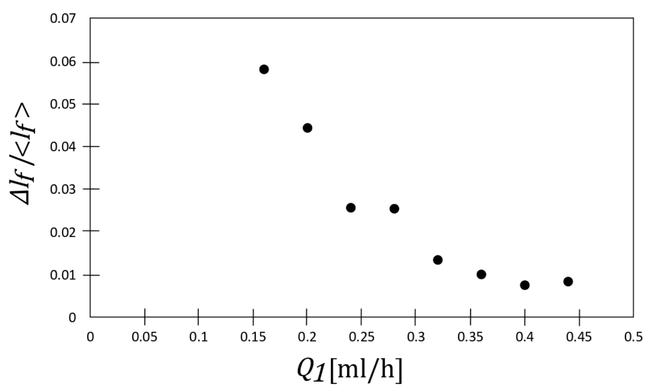

Figure S3: **Flow rate versus average percent difference in fiber length for regular 0.0013 E/(m^2 s) increases in intensity.** The difference Δl_f in fiber length from one trial to the next was taken, and these values were averaged for all trials within a given Q_1 and divided by the average $< l_f >$ for all trials of that Q_1. As Q_1 increases, the average difference in l_f between consecutive trials significantly decreases.