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A breakage mechanism for inhomogeneous biocolloids ERIC KIGHTLEY, DAVID BORTZ, University of Colorado at Boulder — Biocolloids, such as biofilms and free-floating microbial aggregates, constitute a large class of colloids with important applications in diverse areas of industrial, natural, and health sciences. In many of these applications it is often desirable to predict the distribution in space and in time of aggregate size, which depends in part on aggregate breakage. In the case of biocolloids, the internal structure may be inhomogeneous, and we may therefore wish to identify locations of likely breakage sites based upon this structure. We present a method to do so in the case of biocolloids in shear flow, by integrating the force density over the surface of the aggregate with respect to a specified breakage plane. We then apply this method in a simulation to generate a post-fragmentation density function for microbial aggregate fragmentation.

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