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Abstract for an Invited Paper
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New questions in classical polymer physics

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This talk will show some of the most famous problems of polymer physics (the nature of entanglement, microrheology in the noncontinuum limit, pulled chains) can be enriched using deep imaging based on modern fluorescence imaging methods. These methods generate huge statistics regarding polymers whose internal conformational rearrangements can be large enough to image directly. Averages are obtained and also the fluctuations around them. From such investigations some aspects of classical polymer understanding are confirmed, but in other aspects we find surprises. Combining this with recent findings using super-resolution microscopy, a consistent new picture emerges. – Work performed in collaboration with Juan Guan, Kejia Chen, Lingxiang Jiang, John King, Subhalakshmi Kumar, Changqian Yu, and Chi Hang Boyce Tsang.