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Nanoscale construction with DNA

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The programmability of DNA makes it an attractive material for constructing intricate nanoscale shapes. One method for creating these structures is DNA origami, in which a multiple-kilobase single-stranded “scaffold” is folded into a custom nanoscale shape by interacting with hundreds of short oligonucleotide “staple” strands. I will talk about our efforts to realize demand-meeting applications of this method, including our recent development of nanoscale devices to mimic cell-signaling stimulation carried out by our own immune systems.