

Multiresolution Methods for Force-feedback Simulation of Elastic Objects

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In this talk I will describe multiresolution methods for interactive force-feedback simulation of Green's function (GF) based elastostatic models. Wavelet GFs based on second-generation wavelets with fast wavelet transforms are used to reduce GF storage costs, support interactive fast summation of integrated GF responses, and provide multiresolution rendering. Multiresolution constraint handling is also used to reduce runtime updating costs and provide graceful degradation for real time applications. Several examples are presented.