The circle method has been successfully applied over the past decades to the study of rational points on hypersurfaces. More recently, a version of the method over function fields, combined with spreading out techniques, has led to a range of results about moduli spaces of rational curves on hypersurfaces. I will report on joint work (in progress) with Tim Browning on implementing a circle method with an even more distinctly geometric flavour, where the computations take place in a suitable Grothendieck ring of varieties. We establish analogues for the key steps of the method, which enable us to approximate the classes of the above moduli spaces directly without relying on point counting, and lead to a deeper understanding of their geometry.