1163-55-571 **Martin Helmer** and **Vidit Nanda***, nanda@maths.ox.ac.uk. *Computational Topology in Intersection Theory.*

Associated to any pair of complex projective varieties (X,Y), with X irreducible inside Y, is a positive integer called the Hilbert-Samuel multiplicity of Y along X. Not only does this number measure the type of singularity which X forms inside Y, but it also features prominently in a host of other intersection-theoretic contexts (including recursive formulas for MacPherson's Euler obstruction). The typical method for computing these multiplicities relies on Grobner basis computations. In this talk, I will describe a new and far more efficient topological algorithm, which can be used directly with dense point samples and does not require knowledge of the defining polynomials for X and Y. (Received September 09, 2020)