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Logarithmic double ramification cycles

Inside the moduli space of smooth genus  $g$  curves  $(C, p_1, \dots, p_n)$  there is a natural locus, cut out by the condition that there exists a rational function on  $C$  with zeros and poles at the marked points  $p_i$  of specified orders. The double ramification cycle  $DR$  is an algebraic cycle class extending the fundamental class of this locus to the moduli space  $M_{\text{bar}}$  of stable curves. However, from its construction one can see that  $DR$  naturally lives as a cycle on a blowup of  $M_{\text{bar}}$ . Hence it gives a class in the logarithmic Chow ring of  $M_{\text{bar}}$ , which describes the intersection theory of all (suitable) blowups of  $M_{\text{bar}}$  simultaneously. I will describe a recent result joint with Molcho, Holmes, Pandharipande and Pixton where we compute an explicit formula for this so-called logarithmic double ramification cycle. On the way, we will see how to describe classes in the logarithmic Chow ring using piecewise polynomials on the moduli space of tropical curves.