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David M.R. Jackson* (dmjackson@math.uwaterloo.ca), Department of Combinatorics and Optimization, Faculty of Mathematics, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada. *A proof of Faber's intersection number conjecture for the moduli space of smooth curves for a small number of points.* Preliminary report.

We give an outline of a proof of Faber's intersection number conjecture for at most three points and for all genera. The approach is through localisation theory that expresses the generating series for the intersection numbers in terms of a sum over a family of trees with weighted edges and vertices weighted by double Hurwitz numbers. This series satisfies a join-cut equation. In this talk we confine attention to the solution of this equation, and discuss an approach to solving it in the case of a small number of points. The proof is, in principle, only constrained by our knowledge of the generating series for the double Hurwitz numbers.

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