

Cohomology of local systems on moduli spaces of curves and of abelian varieties — Carel Faber, January 28, 2005

The computation of the  $\Sigma_n$ -equivariant cohomology of the moduli space  $M_{g,n}$  of  $n$ -pointed curves of genus  $g$  can essentially be reduced to that of the cohomology of local systems on  $M_g$  for the symplectic group  $\mathrm{Sp}_{2g}$ . These local systems are pulled back from local systems on the moduli space  $A_g$  of principally polarized abelian varieties of dimension  $g$ . Van der Geer and I have obtained explicit formulas for their cohomology, which are partly conjectural, in the case of genus 2. I will discuss these results as well as results in genus 3 obtained by Bergström. If time permits, I will also mention recent joint work with Consani.