Hurwitz theory and the double ramification cycle

Renzo Cavalieri

Abstract. This survey grew out of notes accompanying a cycle of lectures at the workshop *Modern Trends in Gromov–Witten Theory*, in Hannover. The lectures are devoted to interactions between Hurwitz theory and Gromov–Witten theory, with a particular eye to the contributions made to the understanding of the Double Ramification Cycle, a cycle in the moduli space of curves that compactifies the double Hurwitz locus. We explore the algebro-combinatorial properties of single and double Hurwitz numbers, and the connections with intersection theoretic problems on appropriate moduli spaces. We survey several results by many groups of people on the subject, but, perhaps more importantly, collect a number of conjectures and problems which are still open.

R. CAVALIERI
Colorado State University, Department of Mathematics, Weber Building, Fort Collins,
CO 80523-1874, USA
(e-mail: renzo@math.colostate.edu)