Minimal Permutation Degrees
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Over the 2006-07 break, I took a vacation scholarship at Sydney University, under the supervision of Dr Anthony Henderson. The subject I studied was the minimal permutation degree of finite groups. That is the minimal n such that a group G can be faithfully represented in the symmetric group on n letters, i.e. that G is isomorphic to a subgroup of that symmetric group.

During my scholarship I investigated the MPDs of a few different varieties of groups. These included the abelian, dihedral, and all quaternion groups. The symmetry groups of most regular polytopes were calculated, by various considerations. Finally, the MPDs for all finite groups of order less that 32 were tabulated, and also those of a certain class of Frobenius groups.

Overall, my vacation scholarship was a very enjoyable six weeks. It was a good opportunity not only to concentrate on one particular line of research, but to extend my understanding of group theory in new many new directions. Also, it was an opportunity to participate in engaging mathematical conversations with other vacation scholars. It has been an invaluable period which will certainly assist me in my future studies, and I am particularly grateful to AMSI for providing the scholarship.