Abstract

For any partition, the corresponding Specht module is the sub module of permutation module spanned by the poly-tabloids. The Specht modules for a partition of a positive integer $n$ form a complete list of irreducible representations of permutation group of degree $n$. The Semi-Standard Young Tableau (SSYT), on $n$-symbols are one type of combinatorial objects occur naturally in many computational problems in Science, Engineering and Technology, which have one-to-one correspondence with Gelfand–Tzetlin bases set of the Unitary group $U(n)$. In this paper, we propose a method to construct character table of permutation group of degree $n$ using Specht module and Semi Standard Young Tableaux. This method is illustrated with an example using a partition of degree 5 in permutation group $S_5$.

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Index Terms

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