Sylow multiplicities in finite groups and solvability

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Abstract:

Let G be a finite group and let $p_1, \ldots, p_m$ be the distinct prime divisors of its order. Let $P = P_1, \ldots, P_m$ be a sequence of Sylow p_i-subgroups of G. The *Sylow multiplicity* of an element g of G in the sequence P, is the number of distinct factorizations $g = g_1 \ldots g_m$ where g_i belongs to P_i. I'll review several results and open questions relating properties of the sylow multiplicities to solvability properties of G. Part of the talk is based on joint work with Gil Kaplan.