Some results and conjectures related to dimension formulas of paramodular cusp forms

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Abstract. We consider explicit dimension formulas for Siegel cusp forms of degree two. In the 1980s, Ibukiyama gave an explicit dimension formula for paramodular cusp forms. It was mainly motivated by studies of degree two version of Eichler's correspondence and old and new forms, but the formula was restricted to the case of prime level. In this talk, we discuss some generalizations of the dimension formula. We explain some recent progress, together with some applications and related topics.