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# Formulas for central critical values of twisted L-functions attached to paramodular forms

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In the 1980s Böcherer formulated a conjecture relating the central values of the imaginary quadratic twists of the spin L-function attached to a Siegel modular form  $\mathbb{F}$  to the Fourier coefficients of  $\mathbb{F}$ . This conjecture has been proved when  $\mathbb{F}$  is a lift. More recently, we formulated an analogous conjecture for paramodular forms  $\mathbb{F}$  of prime level, even weight and in the plus-space.

In this paper, we examine generalizations of this conjecture. In particular, our new formulations relax the conditions on  $\mathbb{F}$  and allow for twists by real characters. Moreover, these formulations are more explicit than the earlier version. We prove the conjecture in the case of lifts and provide numerical evidence in the case of nonlifts.

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