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Extraction of the bare form factors for the semi-leptonic B_s decays

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The extraction of bare ground-state matrix elements for $B_s \to K\ell\nu$ decay at 2% precision poses a significant numerical challenge. Especially the B-sector, treated in HQET, is problematic due to large contamination by excited states combined with the signal-to-noise problem. The numerical setup that we use provides access to all time separations for both the two-point and three-point correlation functions of interest, for several different smearings. Using this data, we show how the extraction is achieved using two different techniques - the combined fits to two- and three-point correlation functions, as well as the ratio method (where we compare different possible ratio definitions, including summed ratios).

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