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## B(s), D(s) to light tensor meson form factors via LCSR in HQEFT with applications to semileptonic decays

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In the present work, the form factors of  $B_{(s)}$ ,  $D_{(s)}$  to light P-wave tensor mesons ( $a_2(1320)$ ,  $K_2^*(1430)$ ,  $f_2(1270)$ ,  $f'_2(1525)$ ) are calculated via the light cone sum rules (LCSR) in the framework of heavy quark effective field theory (HQEFT). Firstly, the expressions of form factors in terms of the light cone distribution amplitudes (DAs) of tensor mesons are derived via the LCSR at the leading order of heavy quark expansion. It is found that the penguin type form factors can be obtained directly from the corresponding semileptonic ones, which is similar to the case of S-wave mesons. Considering the light tensor meson DAs to twist-3, we give the numerical results of form factors systematically. As applications, we investigate the branching ratios, longitudinal polarization fractions and forward-backward asymmetries of relevant semileptonic decays induced by charged current and flavor changing neutral current (FCNC) separately. Our results may be tested by more precise experiments in the future.

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