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## Effective actions from superstring field theory: algebraic structure and localization

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Starting with a general string field theory action which possesses an  $A_\infty$  (or  $L_\infty$ ) structure, we derive an effective action for the massless degrees of freedom. We show that the vertices of this effective action again exhibit an  $A_\infty$  (or  $L_\infty$ ) structure. Repeating this procedure for the WZW-like heterotic and open superstring field theories formulated in the large Hilbert space, we find that the computation of the quartic vertex of the effective action for massless modes at zero momentum localizes on the boundary of the worldsheet moduli space. We show that our results can be used to efficiently deal with several concrete superstring backgrounds of interest.

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