

# Schubert Calculus and the Boson-Fermion Correspondence

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## Abstract

Originally appeared in string theory, the Boson-Fermion correspondence has found connection to symmetric functions, through its application by the Kyoto school for deriving soliton solutions of the KP equations. In this framework, the space of Young diagrams is conceived as the Fermionic Fock space, while the ring of symmetric functions serves as the Bosonic Fock space. Then the (second part of) BF correspondence asserts that the map sending a partition to its Schur function forms an isomorphism as  $H$ -modules, with  $H$  being the Heisenberg algebra. In this talk, we give a generalization of this correspondence into the context of Schubert calculus, wherein the space of infinite permutations plays the role of the Fermionic space, and the ring of back-stable symmetric functions represents the Bosonic space.