FREE FIELD APPROACH TO THE MACDONALD PROCESS

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ABSTRACT. The Macdonald process is a stochastic process on the collection of partitions that is a (q, t)-deformed generalization of the Schur process. In this talk, we approach the Macdonald process identifying the space of symmetric functions with a Fock representation of the deformed Heisenberg algebra. By using the free field realization of operators diagonalized by the Macdonald symmetric functions, we propose a method of computing several correlation functions with respect to the Macdonald process. It is well-known that expectation value of several observables for the Macdonald process admit determinantal expression. We find that this determinantal structure is apparent in free field realization of the corresponding operators. We also propose a generalized Macdonald measure motivated by recent studies on generalized Macdonald functions whose existence relies on the Hopf algebra structure of the Ding–Iohara–Miki algebra.