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Kyoto, Japan. *Some roles of the Levy Laplacian*. Preliminary report.

The study of the Levy Laplacian has developed extensively in recent years in line with the white noise theory by K. Saito and others. The significance of the Levy Laplacian is getting well understood. We will report on a new result on the restriction of this Laplacian to a certain manifold in function space and to discuss some good connections with other fields of science. The second purpose of the talk is to propose two directions: 1) logarithmic Sobolev generators, and (2) applications to quantum dynamics. The first one was motivated by L. Gross's lecture given at the Nagoya Conference on Gaussian Random Fields held in 1990, and for the second, we consider an interesting connection with the Yang-Mills field, for which L. Accardi and others started the study of significant connections with the Levy Laplacian. With these we can realize the roles of the Levy Laplacian in white noise analysis, which stimulate future investigation. (Received September 29, 2000)