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Complementarity of Bs->mu+mu- and B-> K l+l- decays in New Physics searches

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We discuss the advantages of combining the experimental bound on Br(B_s -> mu+ mu-) and the measured Br(B -> K l+l-) to get the model independent constraints on physics beyond the Standard Model. Since the two decays give complementary information, one can study not only the absolute values of the Wilson coefficients that are zero in the Standard Model, but also their phases. We study benchmark phenomenological models, where only one type of Wilson coefficient is present at a time as well as motivated supersymmetric models and models with leptoquarks. To identify the sector in which the new physics might appear, information about the shapes of the transverse asymmetries in B -> K* l+l- at low q^2's can be particularly useful. We also emphasize the importance of measuring the forward-backward asymmetry in B -> K l+l- decay at large q^2's.

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