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Shot Noise in $SU(N)$ Quantum Dot Kondo Effects PAVEL VITUSHINSKIY, McGill, Montreal, KARYN LE HUR, Yale University, AASHISH CLERK, McGill — We study effect of interactions on transport properties of mesoscopic conductors whose low-temperature behavior corresponds to $SU(N)$ Kondo model where cases of $N=2$ and $N=4$ describe spin-1/2 and carbon nanotube quantum dots and thus are experimentally relevant. Unlike previous studies, we find that there exist two distinct physical mechanisms via which two-particle interactions modify shot noise: scattering process with N -dependent effective charge and enhancement of coherent partition noise. We also account for possible deviation from perfect models such as asymmetry of couplings to source and drain as well as presence of residual potential scattering at low temperatures. The method we propose is not specific just to Kondo effect quantum dots and can be applied to a wide variety of different mesoscopic systems.

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