Memoryless nonlinear response as an explanation of $1/f$ noise

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We have recently proposed a simple and fairly general mechanism for the ubiquity of $1/f$ noise that is seen in diverse physical systems. If an input Brownian noise signal with power spectrum $1/f^2$ is fed into a device that produces a nonlinear memoryless response, the output signal will, in general, show a power-spectrum varying as $1/f^a$ for low frequencies, with a different from the input exponent, 2. The same observation holds for general input Gaussian noise with power-spectrum $1/f^\alpha$, with α different from 2, and the output noise has power-spectrum varying as $1/f^\beta$, with β different from α, but dependent on the nonlinear device characteristics.