单稳态系统应用于加性高斯白噪声信号检测

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摘要　在加性高斯白噪声信号检测中，在采样周期极小或接近理想的情况下，连有匹配滤波
器的检测电路是最佳的。如果匹配滤波器的采样周期没有达到理想情况，则在它之前连一个
双稳势的非线性系统，然后选择合适的参数使此系统始终处于单稳态，再对二进制或多进制码元
信号进行检测，即使采样周期变化程度较大，
检测性能也会得到显著的改善。另外还导出了单稳态系统性能的理论公式。

Signal detection in AGWN by using single stable state system

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Abstract When sampling period is very low or close to ideal case for signal detection in additive Gaussian white noise (AGWN), the detection circuit with matched filter is optimal. Otherwise, a bi-stable nonlinear system can be connected to the matched filter, and by adjusting the system parameters, the system will keep in single state for the detection of binary or multi　nary code, so that the detection performance can be remarkably improved in a wide range of sampling period. In addition, a theoretical formula of the system performance was derived.

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