

Optical systems

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may 27 2018

1 introduction

Stochastic resonance was realized in an electronic circuit, a simple Schmitt trigger (Fauve and Heslot, 1983). Since then, stochastic resonance has been observed in a variety of more or less complicated electronic devices, mostly constructed with the purpose of building flexible and inexpensive simulation tools.

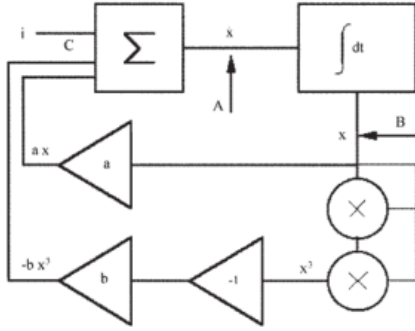


Figure 1: 23 Bistable ring laser

2 Analog electronic simulators

As mentioned in Sec. II.C, electronic circuits have been widely employed in the study of nonlinear stochastic equations.[1] The realization of an elec-

tronic simulation circuit requires the design of specific electronic devices which operate as the single components of the block scheme depicted in Fig. 23.

$$x' = x - x^3 + u(t) + A_0 \cos(st) \quad (1)$$

3 Electron paramagnetic resonance

An EPR system consists of a paramagnetic sample placed in a microwave cavity. A microwave generator irradiates the sample while a feedback electronic circuit locks the oscillator frequency to the resonant frequency N_c of the cavity.[2]

4 Superconducting quantum interference devices

The basic components of a SQUID are a superconducting loop and a Josephson junction. For practical purposes, a SQUID can be envisioned as an electromagnetic device that converts a magnetic flux variation into a voltage variation and, as such, it has been successfully employed in monitoring small magnetic field fluctuations.[3]

	1	2	3	4	5	6	7
Alphabet	A	B	C	D	E	F	G
Roman	I	II	III	IV	V	VI	VII

Table 1: Results. Ours is better.

References

- [1] R. Benzi, G. Parisi, A. Sutera, and A. Vulpiani. Stochastic resonance in climatic change. *Tellus*, 34(1):10–16, 1982.
- [2] S. Fauve and F. Heslot. Stochastic resonance in a bistable system. *Physics Letters A*, 97(1):5–7, 1983.
- [3] K. Wiesenfeld and F. Moss. Stochastic resonance and the benefits of noise: from ice ages to crayfish and squids. *Nature*, 373(6509):33–36, 1995.