Interferometric stabilisation of a fibre-based optical computer

Experimental study

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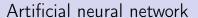


- Introduction
- 2 Reservoir Computing
- 3 Photonic reservoir computer with wavelength division multiplexed neurons
- 4 Interferometric stabilisation of reservoir cavity
- Conclusion

Introduction

- The development of next generation technological computation paradigm is investigated
- ullet Optical computers use light as information carrier \longrightarrow fast
- Optical computers do not need to rely on boolean logic as classical computers do, new computation paradigms based on specific physical properties of light can be implemented
- Photonic reservoir computing is one of such implementation

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Reservoir computing

Mathematical model

Photonic reservoir computing

Numerical simulations

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Working princinple

Frequency coupling of the neurons

Mathematical model

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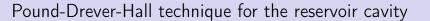
Interferometry

Experimental setup

Transfer function of the cavity

Classical cavity stabilisation

Pound-Drever-Hall technique



Cavity stabilisation performances

Results

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Erratum

Conclusion

References