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Theme issue: Horizons of cybernetical physics

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**PREFACE**

Horizons of cybernetical physics

AL Fradkov

**INTRODUCTION**

Horizons of cybernetical physics

AL Fradkov

**ARTICLES**

Common foundations of optimal control across the sciences: evidence of a free lunch

B Russell and H Rabitz

Partially controlling transient chaos in the Lorenz equations

R Capeáns, J Sabuco, MAF Sanjuán and JA Yorke

Control methods for localization of nonlinear waves

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Control of autoresonance in mechanical and physical models

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Cone separation, quadratic control systems and control of spin dynamics in the presence of decoherence

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Controllability of networked higher-dimensional systems with one-dimensional communication

L Wang, X Wang and G Chen

Synchronization patterns: from network motifs to hierarchical networks

Feedback traps for virtual potentials

Dissipative open systems theory as a foundation for the thermodynamics of linear systems

Finding limiting possibilities of thermodynamic systems by optimization

Modelling non-equilibrium thermodynamic systems from the speed-gradient principle

Tumour chemotherapy strategy based on impulse control theory

Nonlinear dynamics as an engine of computation

CORRECTIONS

Correction to 'Developing a test-bed for robust research governance of geoengineering: the contribution of ocean iron biogeochemistry'