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Multiple bifurcations in a harmonic oscillator with delayed feedback

Cao, Jianzhi; Yuan, Rong. **Neurocomputing** 122 : 172-180. Elsevier. (Dec 25, 2013)

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AB

Abstract (summary) [Translate](#)

In this paper, we consider a harmonic oscillator with delayed feedback. By studying the distribution of the eigenvalues of the characteristic equation, we drive the critical values where Bogdanov-Takens (B-T) bifurcation and zero-Hopf bifurcation occur. The versal unfoldings of the normal forms at the singularity of B-T and a pure imaginary and a zero eigenvalue singularity are given, respectively. Some numerical simulations verify the theoretical results. © 2013.

SU, SUBT

Indexing (details) Cite

Subject Hopf bifurcation (major); Eigenvalues and eigenfunctions; Oscillators (mechanical)

Classification 601.1: Mechanical Devices; 921: Applied Mathematics; 921.1: Algebra; 931: Applied Physics Generally

Identifier (keyword) Bogdanov-Takens bifurcations, Characteristic equation, Critical value, Delayed, Delayed feedback, Harmonic oscillators, Multiple bifurcations, Zero-Hopf bifurcations, Bogdanov-Takens bifurcation, Harmonic oscillator, Zero-Hopf bifurcation

TI
AU

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Author Cao, Jianzhi ¹; Yuan, Rong ¹

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SL

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Classification ¹	CC,CL	cc("mechanical devices ") cl(601.1)	An alternative to CMDXCC for cross-file searching. Not available in pre-1970 data.
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CODEN	CODEN	coden(nrcge)	
Conference	CF	cf("2011 aai workshop")	Includes conference name.
Conference event start date	ESDT, CDT	esdt(2011-08-07)	
Conference event end date	EVDT	evdt(2011-08-07)	
Conference location	CG	cg("columbus oh*") cg("vancouver bc")	
Conference sponsor	CS	cs(boeing) cs("northrop grumman")	Not available in pre-1970 data.

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ISBN	ISBN	isbn(0030099927) OR isbn(9780030099922)	Also searchable via the Look Up Citation tool. Not available in pre-1970 data.
Identifier (keyword)	IF	if("characteristic equation")	Not available in pre-1970 data.
ISSN	ISSN	issn(0925-2312) issn(09252312)	Also searchable via the Look Up Citation tool. Not available in pre-1970 data.
Issue	ISS	iss(12)	

Field Name	Field Code	Example	Description and Notes
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Language of abstract	SL	sl(english)	
Major subject	MJSUB	mjsub(hopf bifurcation)	
Pagination	PG	pg(172-180)	The start page is searchable on the Look Up Citation page.
Patent information	PAT	pat("dow chemical")	Patent information is only available between the years 1906- 1976.
Inventor	INV	inv(takagi, h)	
Patent application date	PAD	pad(1965-09-28)	
Patent assignee	AP	ap("sakai chemical industry co")	
Patent publication date	PDA	pda(19690617)	
Patent publication number	PN	pn(3450585)	
Patent publication country	PC	pc(gb) pc(us)	
Publication date	PD	pd(20081001) pd(>=20110415) pd(20100101-20101231)	Date range searching is supported.
Publication title ¹	PUB	pub(neurocomputing)	Publication title including full and abbreviated form of Journal name.
Publication year	YR	yr(2007) yr(2011-2012) yr(<2009)	Date range searching is supported.
Publisher	PB	pb("taylor and francis")	
Publisher city	PBCITY	pbcity(london) pbcity(abingdon oxfordshire)	
Place of publication	CP	cp(china)	Country of publication.
Source information	SRC	src("radiation physics and chemistry") AND yr(2011)	
Subject ¹	SU	su(oscillators (mechanical))	Includes Subject and Identifier (keyword).

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