

1. Record Nr.	UNINA9910460418903321
Autore	Lukovsky Ivan A.
Titolo	Nonlinear dynamics : mathematical models for rigid bodies with a liquid // Ivan A. Lukovsky ; translated by Peter V. Malyshev
Pubbl/distr/stampa	Berlin : , : De Gruyter, , [2015] ©2015
ISBN	3-11-055536-0 1-5231-0464-3 3-11-031657-9 3-11-038973-8
Descrizione fisica	1 online resource (410 p.)
Collana	De Gruyter studies in mathematical physics, , 2194-3532 ; ; 27
Disciplina	003.75
Soggetti	Dynamics Dynamics, Rigid Nonlinear theories Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Foreword to English Edition -- Foreword to Russian Edition -- Contents -- Introduction -- Chapter 1. Governing equations and boundary conditions in the dynamics of a bounded volume of liquid -- Chapter 2. Direct methods in the nonlinear problems of the dynamics of bodies containing liquids -- Chapter 3. Hydrodynamic theory of motions of the ships transporting liquids -- Chapter 4. Nonlinear differential equations of space motions of a rigid body containing an upright cylindrical cavity partially filled with liquid -- Chapter 5. Nonlinear modal equations for noncylindrical axisymmetric tanks -- Chapter 6. Derivation of the nonlinear equations of space motions of the body-liquid system by the method of perturbation theory -- Chapter 7. Equivalent mechanical systems in the dynamics of a rigid body with liquid -- Chapter 8. Forced finite-amplitude liquid sloshing in moving vessels -- Bibliography -- Index -- Backmatter
Sommario/riassunto	This book is devoted to analytically approximate methods in the nonlinear dynamics of a rigid body with cavities (containers) partly

filled by a liquid. The methods are normally based on the Bateman-Luke variational formalism combined with perturbation theory. The derived approximate equations of spatial motions of the body-liquid mechanical system (these equations are called mathematical models in the title) take the form of a finite-dimensional system of nonlinear ordinary differential equations coupling quasi-velocities of the rigid body motions and generalized coordinates responsible for displacements of the natural sloshing modes. Algorithms for computing the hydrodynamic coefficients in the approximate mathematical models are proposed. Numerical values of these coefficients are listed for some tank shapes and liquid fillings. The mathematical models are also derived for the contained liquid characterized by the Newton-type dissipation. Formulas for hydrodynamic force and moment are derived in terms of the solid body quasi-velocities and the sloshing-related generalized coordinates. For prescribed harmonic excitations of upright circular (annular) cylindrical and/or conical tanks, the steady-state sloshing regimes are theoretically classified; the results are compared with known experimental data. The book can be useful for both experienced and early-stage mechanicians, applied mathematicians and engineers interested in (semi-)analytical approaches to the "fluid-structure" interaction problems, their fundamental mathematical background as well as in modeling the dynamics of complex mechanical systems containing a rigid tank partly filled by a liquid.

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2. Record Nr.	UNINA9910788527303321
Autore	Laxton Douglas
Titolo	Practical Model-Based Monetary Policy Analysis : : A How-To Guide // Douglas Laxton, Andrew Berg, Philippe Karam
Pubbl/distr/stampa	Washington, D.C. : , : International Monetary Fund, , 2006
ISBN	1-4623-7201-5 1-4527-9051-5 1-282-54536-1 1-4519-0876-8 9786613822123
Descrizione fisica	1 online resource (69 p.)
Collana	IMF Working Papers
Altri autori (Persone)	BergAndrew KaramPhilippe
Soggetti	Economic forecasting Monetary policy Foreign Exchange Inflation Macroeconomics Production and Operations Management Monetary Policy Money and Interest Rates: Forecasting and Simulation Model Construction and Estimation Computational Techniques Price Level Deflation Macroeconomics: Production Energy: Demand and Supply Prices Currency Foreign exchange Output gap Oil prices Real exchange rates Exchange rates Production Economic theory United States

Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"March 2006."
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	""Contents""; ""I. INTRODUCTION""; ""II. THE MODEL""; ""III. BUILDING THE MODEL""; ""IV. FORECASTING AND POLICY ANALYSIS""; ""V. AN EXAMPLE""; ""VI. CONCLUSIONS""; ""REFERENCES""
Sommario/riassunto	This paper provides a how-to guide to model-based forecasting and monetary policy analysis. It describes a simple structural model, along the lines of those in use in a number of central banks. This workhorse model consists of an aggregate demand (or IS) curve, a price-setting (or Phillips) curve, a version of the uncovered interest parity condition, and a monetary policy reaction function. The paper discusses how to parameterize the model and use it for forecasting and policy analysis, illustrating with an application to Canada. It also introduces a set of useful software tools for conducting a model-consistent forecast.