

INDEX

PART I

SECTION I

ARTICULOS INVITADOS INVITED PAPERS

P. Beckers and H. G. Zhong	
Error estimation and mesh adaptation in engineering analysis - A review of the methods and future trends	19
J. Descloux, M. Flueck and M. V. Romero	
Modeling of the stability of the electrolysis cells for the production of aluminium	30
A. Dou	
Sentido y ética de la técnica	39
J. C. Heinrich and B. R. Dyne	
Analysis of reacting compressible flows by the finite element method ..	49
Y. Achdou and O. Pironneau	
Computation of high reynolds laminar flows	58
M. Frémond	
Fiber reinforced material	66
R. D. Russell and Y. Ren	
On moving mesh methods for solving time-dependent partial differential equations	76
B. A. Schrefler, L. Simoni and X. Y. Zhan	
Finite element analysis of heat and mass transfer in deformable saturated-unsaturated porous media	86
O. C. Zienkiewicz and J. Z. Zhu	
Advances in adaptive accuracy control	96
W. Lick	
Modeling the transport and fate of contaminants in shallow bodies of water	110
C. Carasso	
Boundary conditions for nonlinear hyperbolic systems	120
F. G. Basombrío	
Soluciones transcriticas en flujos de fluidos viscoelásticos	121
C. Conca, J. Planchard and B. Thomas	
Limiting behaviour of the spectrum of large elastic tube arrays in a fluid	128
P. R. B. Devloo, C. A. Magalhaes and A. T. Noel	
On the implementation of the P-adaptive finite element method using the object oriented programming philosophoy	137
E. N. Dvorkin, D. Pantuso and E. A. Repetto	
2D Finite strain elasto-plastic analysis using a quadrilateral element based on mixed interpolation of tensorial components	144
G. N. Gatica	
On the coupling of boundary integral and finite element methods	158
M. Fey, R. Jeltsch and S. Müller	
Finite volume methods for solving the unsteady euler equations with chemical reactions	168

M. C. Rivara		
Generacion de mallas para métodos de elementos finitos adaptivos	181	
J. R. Whiteman, S. Shaw and M. K. Warby		
Finite element methods with recovery for problems of viscoelasticity	191	
G. C. Hsiao and W. L. Wendland		
Domain decomposition via boundary element methods	198	
E. Oñate		
Una panorámica de las posibilidades del MEF para análisis de procesos de conformato de metales	208	
SECTION II		
ESTRUCTURAS		
STRUCTURAL MECHANICS		
N. Moraga, R. Schlegel and U. Lacoa		
Finite element versus finite control methods in some classical fluid mechanics problems	229	
M. M. Saleh and M. S. J. Hashmi		
Development of a finite element computer program for two dimensional large elastic-plastic deformation as an educational aid	238	
R. Ríos R.		
Natural frequencies in laterally guided saws by means of the ritz method	245	
A. Arroyo Roo and M. Cerrolaza		
A simple element for analysis of thick or thin shells of revolution	251	
J. A. Herminio and S. M. S. Tuma		
The role of finite element method in mechanical computer aided projects		
Bending plate analysis	260	
C. Padra, G. C. Buscaglia and E. A. Dari		
Adaptivity in steady incompressible navier-stokes computations using discontinuous pressure interpolants	267	
B. K. Alves and J. Lubliner		
A damage mechanics model for beams. Application to reinforced concrete beams	277	
M. Reggio and H. Zhang		
Simulation of 2-D depth-averaged flows using a flux difference splitting scheme	287	
R. Salgado		
Comparison between linear solvers for sparse systems in steady state pipe network analysis with the gradient method	297	
C. Filipich and M. B. Rosales		
Exact frequencies of beams and plates a generalized solution	307	
A. E. Mirasso and L. A. Godoy		
A perturbation/fe approach for teh stability analysis of systems with unilateral constraints	317	
P. Valcárcel, J. Estévez and F. Escrig		
Expandable triangular cylindrical vaults	327	
S. P. B. Proença and M. S. Alvares		
On numerical performance of damage model applied to the analysis of concrete structural members	337	
SECTION III		
GENERACION DE MALLA Y ADAPTIVIDAD		
MESH GENERATION AND ADAPTIVITY		
E. B. de las Casas and A. M. G. Figueiredo		
An R-H adaptive multigrid program for finite elements	483	
J. Y. Trépanier, M. Paraschivoiu and M. Reggio		
An unstructured adaptive grid method for rotor-stator interaction in turbomachinery cascades	493	
L. Quiroz and P. Beckers		
Conexion de mallas heterogeneas en el método de los elementos finitos	503	

G. Bugeda and E. Oñate	
Adaptive mesh refinement techniques for aerodynamic problems	513
G. Iribarren and M. C. Rivara	
Estudio de un algoritmo de refinamiento de triángulos	523
P. Inostroza and M. C. Rivara	
Herramienta gráfica interactiva para generar triangulaciones en 2-D ...	533
E. Mercader y M. C. Rivara	
Herramienta para resolver EDP en 2-D mediante métodos adaptativos y multimallas	543

SECTION IV
GEOMECHANICA
GEOMECHANICS

J. Vergara and L. Aguirre	
Un modelo numérico de precipitación orográfica para la zona central de Chile	555
F. Colleselli and G. Cortellazzo	
Foundations for large embankments	565
J. Vergara	
Modelamiento numérico de la surgencia costera en la costa norte de Chile	575
G. de Saxcé, L. Bousshine and A. Berga	
The implicit standard material approach for non associated plasticity in soil mechanics	585
L. Alvarez and L. Argüelles	
Analysis of the behavior of the earth dam embankment by applying automatic computation to the resolution by numerical methods	596
M. T. Liang and Y. Liu	
Analysis of three-dimensional pile groups	605

PART II

SECTION V
FLUIDOS
FLUID MECHANICS

C. Pérez, A. Pascau and F. Serón	
Conjugate gradient type methods for the coupled solution of the incompressible navier-sotkes equations	633
A. Larreteguy	
An equal-order control volume finite element method for fluid flow in arbitrary triangulations	643

A. Bourgeat	
Simulating gas-liquide flow in a well-reservoir system	653
K. Pickens, M. Carro-Donna, J. Chen and W. Lick	
Sediment transport in a stratified estuary	663
D. González, A. Baez, N. Berbin and J. Rodríguez	
Programa para el cálculo de caídas de presión en tuberías	672
B. Epple and U. Schnell	
Domain decomposition method for the simulation of fluid flow in coal combustion furnaces	676
R. Salgado, J. Twyman and C. Twyman	
A hybrid method for unsteady flow in pipe networks and its comparison with characteristics and finite difference methods	686
A. Díaz, A. Carrizosa and F. J. Sánchez	
A numerical scheme for the flow in the storage tank of a solar collector	696
J. Martínez-Mardones, R. Tiemann and W. Zeller	
Numeric methods in thermal instability of viscoelastic rotatory fluid layer	703
M. G. Armentano	
Parameter identification in burgers' equation	712
V. IL Tsurkov	
Unbounded solutions of initial value problem of the gas dynamic euler's equations (majorant catastrophe)	720
G. C. Buscaglia	
Some experiences with several stress-velocity-pressure mixed finite elements for the stokes equations	729
R. Codina, U. Schäfer, E. Oñate, M. Cervera and O. Soto	
A finite element model to track free surfaces of viscous incompressible flows	737
H. H. Fröhlauf and S. Lecheler	
Accurate computation of complex three-dimensional inviscid flows	747
R. Berrios and M. Cerrolaza	
Mecánica de bio-fluidos via elementos finitos en formaciones ateroescleróticas	758
A. Camurri	
Modelación fenomenológica de cavitación en un flujo hidrodinámico plano e irrotacional	768
T. G. Thomas and J. J. R. Williams	
Numerical aspects of large eddy simulation of free surface flows	778
J. Seguel and F. C. Sanmiguel	
Addressing schemes for prime factor ffts and their use in large-scale fft design	788
S. L. Frey, L. P. Franca and R. Sampaio	
Stabilized methods for the incompressible navier-stokes flow	796
M. D. Giavaldoni and F. A. Saita	
The design of a slot coater	806
V. Ruas	
Some recent developments on finite element analysis of viscoelastic flow	816
N. Nigro	
Simulacion numérica de flujo a dos fases en reactores agitados por gas	822
M. Carro and H. Mennickent	
Numerical modelling of the hydrodynamic circulation in the San Vicente Bay	832

SECTION VI

METODOS NUMERICOS NUMERICAL METHODS

Y. Dubois-Pèlerin and T. Zimmermann	
Object-oriented finite element programming: A new modularity	843
L. A. Lagos and J. H. Moreno	
Matrix algorithms under NCS on a local-area network of computers ..	852
M. Galante	
Structures optimization by a simple genetic algorithm	862
C. Angulo, E. García Vadillo and J. Canales	
Optimization of the dynamic characteristics of structures	871
J. Durany, G. García and C. Vázquez	
Numerical solution of rolling ball contact problems in elastohydrodynamic lubrication	880
N. Borges	
About the speed-up of the multigrid methods in transputer networks ..	890
J. M. Correas, I. San José and M.^a A. Franco	
Adaptive numerical treatment of stiff problems by one-parameter multistep like BDF formulas	899
T. Chyzy and R. Tribillo	
A new iterative method for solving of large systems of linear equations generated in fem	907
A. Muñoz, R. Ramírez and J. Solano	
New routines for the solution of very large systems of linear equations	912
T. Chen and R. F. Boucher	
A new approach to system dynamics: Energy wave method in junction-element networks	922
M. Marín, D. Risco and P. Cordero	
Estrategias eficientes para dinámica molecular conducida por eventos ..	932
C. Sánchez Avila	
An adaptive regularization approach for solving discrete ill-posed problems. Application to the harmonic signals restoration	943
R. L. Branham, Jr.	
Generalized total least squares in scientific data reduction	952
C. Doll, S. Rojas and I. Garces	
Aplication of mathematical methods for the improvement of a crushing-classification circuit	962
O. Rojo, R. L. Soto and H. Rojo	
A decreasing sequence of rectangles containing the eigenvalues of a matrix	972
P. Cuesta, M. Galante and G. Montero	
Optimización de mallas generadas por avance frontal atraves de un algoritmo genético simple	981
V. I. Tsurkov	
Decomposition of large-scale two-point boundary-value problem	988
C. Sbert	
Numerical algorithm 3D of a nonlinear diffusion equation applied to image processing	995

T. A. Diverio, H. Korzenowski and M. Leyser

Versions of newton interval method

1005

L. E. Chiang, Ph. D. and C. J. Jouanne L.

Contribución del efecto viscoso de la capa límite sobre el coeficiente de arrastre de vehículos de transporte terrestre

1012

M. Durán L. and E. Gonzalez O.

Utilización de un algoritmo de optimización para aumentar la ductilidad de marcos de hormigón armado ante cargas horizontales

1022

H. A. Jensen

Dynamic response variability: formulation by the probabilistic finite element method

1032

J. C. Reginato and D. A. Tarzia

A free boundary model for root growth of crops owing to absorption of one more mobile and immobile ions

1042

M. A. Rincón

Método numérico para resolución de un problema no lineal con valores de contorno

1052

R. Mac-Ginty and J. R. Pérez

Economic evaluation of control algorithms in a chemical plant

1060

J. Kowalski

Modeling knowledge-based system for optimum machine design: the design studies approach

1068

M. Campos and C. A. De Moura

Un algoritmo paralelo para scattering inverso

1075

SECTION VII

ELECTROMAGNETISMO ELECTROMAGNETICS

M. V. Riesco S. and F. J. Alonso R.

Generación automática de elementos finitos para la resolución numérica de transitorios en redes eléctricas

1087

J. I. Aliaga and V. Hernández

Implementación de algoritmos paralelos para la estimación del estado en sistemas eléctricos de potencia sobre multiprocesadores con memoria compartida

1097

J. M. Franco

Chawla-numerov methods for semidiscretized wave equations

1107

J. C. Montaño, A. López, M. Castila and J. Gutiérrez

Digital algorithm for electric quantities measurement

1117

J. Ruiz and J. Moreno

Solving finite difference problems on a DSP

1127

M. Valenzuela, H. Arce and J. Ruiz

Determining pole geometry for a given magnetic field distribution

1134

V. A. Zheludev

Spline-operational calculus as computational harmonic analysis

1143

J. C. A. Santos and P. J. C. Rodrigues

Numerical techniques for the solution of the hydrodynamic equations in semiconductor device simulation

1153

R. Sandner and A. Zabel	
Integrating mathematical models and qualitative representation for reliability simulation of electrical substations	1161
V. Caselles, B. Coll, F. Catté and F. Dibos	
A mean curvature motion model applied to image processing	1170
S. D. Felicelli	
Calculation of macrosegregation induced by electromagnetic stirring ..	1178
I. Colominas, F. Navarrina and M. Casteleiro	
A validation of the boundary element method for grounding grid design and computation	1187
F. Navarrina, I. Colominas and M. Casteleiro	
Analytical integration techniques for earthing grid computation by boundary element methods	1197

SECTION VIII

TRANSMISIÓN DEL CALOR HEAT TRANSFER

R. Moreno, F. Devlieger and L. Inzunza	
Finite difference simulation for heat conduction applied to heating veneer logs	1209
P. Calvo and F. Pétriz	
Multigrid method with spectral discretization applied to the convection-diffusion equation	1218
I. Al Natour and M. S. J. Hashmi	
Numerical solution of a mathematical model for temperature analysis in hydraulic system under unsteady conditions	1225
A. Campo and A. O. Nieckele	
Bounds for the heat liberation of pipes with an array of longitudinal fins attached at its outer surface	1235
R. O. Saliba and G. C. Buscaglia	
Finite element analysis of the growth of a hydride blister a non-isothermal zirconium-alloy tube	1245
J. M. Rodríguez and J. M. Ledanois	
Predicción de eficiencias de colectores solares de geometría no plana. Optimización de variables	1252
R. Grzymkowski	
The numerical control model of nonstationary temperature distribution	1258

SECTION IX

PROCESOS DE CONFORMADO FORMING PROCESSES

E. Bochmann	
Friction as a critical phenomenon in the simulation of metal forming	1267
J. Oliver, S. Oller and J. C. Cante	
Numerical simulation of uniaxial compaction processes in powder materials	1277

C. Camurri and I. Wilkomirsky	
Modelo fenomenológico del perfil del rodillo durante la laminación de planos en frío	1287
V. Lopes Junior and H. Ingo Weber	
The contact problem of a Rubber-covered roll and a steel roll	1300
M. B. Goldschmit and E. N. Dvorkin	
A generalized galerkin technique for solving the stationary convection-diffusion effect of mesh distortions	1309

SECTION X

MISCELLANEOUS

B. H. Kröplin	
Instability prediction by energy perturbation	1321
F. Gandía a., L. Plágaro P. and A. Rodríguez S.	
Código para el diseño aerodinámico de perfiles para aeroturbina	1331