

Author Index

The numbers in this index are paper numbers.

- Acedo, L., 25
- Afzal, M., 118
- Agouzal, A., 57
- Akiba, H., 1
- Alawi, M.H., 106
- Albelda, J., 2
- Allen, C.B., 116, 157
- Allocca, L., 53
- Amanbayev, T., 118
- Amat, S., 39
- Ammar, A., 48
- Annerel, S., 154, 162
- António, C.C., 151
- Antony, S.J., 118, 135
- Ardito, R., 121
- Arroyo, V., 37
- Ascione, V., 62
- Attarnejad, R., 161
- Augusto, R.A., 15
- Balaguer-Beser, A., 165
- Ballester, F., 95
- Baños, R., 105
- Bargos, F.F., 15
- Baxter, S.C., 119
- Bellucci, M., 63
- Benhabib, K., 134
- Benítez, J., 21
- Bergamaschi, L., 33, 34
- Bertarelli, E., 121
- Bertram, A., 120
- Bessho, M., 97
- Bittencourt, M.L., 15
- Bletzinger, K.-U., 67
- Bojarevics, V., 71, 75
- Bols, J., 154
- Bonithon, G., 43
- Borković, A., 80
- Boroomand, B., 117
- Bouhaddi, N., 163
- Bozza, F., 49
- Brož, J., 5
- Bru, R., 30
- Brzobohatý, T., 7
- Busquier, S., 39
- Calì, C., 61, 62
- Campbell, T., 13
- Candela, V.F., 36
- Capilla, M.T., 165
- Cappetti, N., 52
- Caputo, F., 63
- Carlone, P., 64, 65
- Carlos, S., 88
- Castro, C.F., 151
- Celemín, M., 89
- Chapman, D., 135
- Chassiakos, A.P., 90
- Chen, H.B., 82
- Chen, H.M., 111
- Chen, Y., 97
- Cheng, H.P., 11, 13
- Cheng, J.R.C., 11, 13
- Chetverushkin, B.N., 169
- Chinesta, F., 43, 47, 48
- Churbanova, N.G., 169
- Cimrman, R., 137
- Citarella, R., 62
- Clarke, A., 102, 104
- Climent, J.J., 20

- Coll, C., 24
Contro, R., 121
Coorevits, P., 134
Cordero, A., 37, 38, 41
Corigliano, A., 121
Corral, C., 2, 35
Costa, M., 49, 53
Covián, E., 89
Criado, R., 27
Cricrì, C., 61
Crolla, D., 167
Cruz, J.M.F., 115
Csébfalvi, G., 94
Cubero, A., 12
Cueto, E., 47, 48
- D'Agostino, V., 51
Dabbour, E., 170
Danilov, A., 57
Dattoma, V., 109
Davey, K., 129, 131
De Giorgi, M., 109
De la Cruz, M., 50
Debeugny, L., 47
Debrouwere, B., 162
Degroote, J., 154, 162
del Valle, M., 89
Delgado-Galván, X., 21
Demir, A., 139
Di Giuda, R., 51
Díaz, F., 172
Diego-Carrera, R., 95
Díez, I., 23
Díez, P., 47
Doblaré, M., 48
Dolenc, M., 16
Dolsek, M., 16
Dostál, Z., 8, 9
Drosos, V., 147
Düster, A., 160
- Easter, S., 71
Eberhard, P., 136
Elbeltagi, E., 99
Eliezer, O., 91
Elkady, M., 167
ElMadany, M.M., 54
- Elmarakbi, A., 167
Ergenziinger, C., 136
Escobar, J.M., 172
Eyheramendy, D., 66
Ezquerro, J.A., 42
- Fabbrocino, G., 141
Falcó, A., 46
Farkas, I., 132
Farthing, M.W., 11
Fernández, M., 76, 95
Ferrieres, X., 85
Ferronato, M., 3
Firl, M., 67
Fischer, M., 67
Flores, F.-A., 143
Flores, J., 27
Fresl, K., 133
Fresnadillo, M.J., 98
Frisch, J., 78
Fuerle, F., 79
Fueyo, N., 12
- Galiana, F., 23
Galván Llopis, V., 113
Gambolati, G., 3
García del Amo, A., 27
García, E., 98
García, J.E., 98
Gasque, M., 107
Geller, S., 160
Gerges, Y., 163
Gerstmayr, J., 112
Giancane, S., 109
Gil Benso, E., 113
Gil, C., 105
Gil, L., 152
Giménez, I., 30, 35
Gimeno, J., 76
Ginestar, D., 24, 32
Glüge, R., 120
Głut, B., 59, 60
González, D., 47
González-Pintor, S., 32
González, V., 12
Grierson, D., 99
Gruber, P., 10

- Guillaume, P., 128
Gutiérrez, J.M., 39, 40
Györgyi, J., 159
- Haber, I.E., 132
Hackl, K., 122
Hadjidimos, A., 30
Hajduković, M., 80
Hegazy, T., 99
Held, A., 100
Herai, T., 155
Hernández, M.A., 42
Herranz, M.V., 20
Herrera, M., 19, 22
Herwindiati, D.E., 108
Hong, Y.S., 140, 142
Horák, D., 8, 9
Hsiao, H.J., 140
Huang, C.Y., 142
Huerta, A., 47
Hueso, J.L., 38, 41
Hung, C.W., 82
Hunter, R.M., 13
- Ibrahem, A.M., 168
Ilic, S., 122
Ismail, I., 4
Istrate, M.V., 164
Itam, Z., 125
Ito, T., 97
Iványi, P., 55
Iwasawa, H., 101
Izquierdo, J., 19, 21, 22
- Janna, C., 3
Jeng, F.S., 124
Jiang, S.Q., 114
Jönsson, B., 123
Joyot, P., 43
Ju, C.F., 140
Jurczyk, T., 59, 60
- Kabelikova, P., 8
Kalateh, F., 161
Kanayama, H., 4
Kao, A., 74
Kassas, E.M., 96
Kawahara, M., 144, 149, 155, 156, 158
- Kelly, P., 50
Kita, E., 18, 101
Klimach, H., 14
Klinc, R., 16
Koenke, C., 125
Kolář, D., 87
Kollmannsberger, S., 160
Koudelka, T., 68
Kozubek, T., 7, 8
Krafczyk, M., 160
Krejčí, T., 68
Kruis, J., 5, 6, 68
Kuramae, H., 150
Kuroda, T., 101
Kuzniar, K., 145
Květoňová, Š., 87
- Labbez, C., 123
Laman, M., 139
Lamanna, G., 63
Láng, B., 92
Lanzano, G., 141
Laurent, J.B., 85
Lazarevic, D., 133
Lazovic, T., 81, 110
Lepore, M., 62
Levi, R., 86, 91
Leygue, A., 45
Liao, C.Y., 124
Lin, H.-C., 13
Lin, Y.C., 111
Lipnikov, K., 57
Little, A.P.F., 171
Llorens, M., 26
Lorenzana, A., 164
Lubowiecka, I., 153
Lukeš, V., 83
- Mackman, T.J., 116
Magreñán, A.A., 40
Manco, P., 109
Manzano-Agugliaro, F., 105
Marcé-Nogué, J., 152
Marie, C., 134
Marinkovic, A., 81, 110
Markopoulos, A., 7, 8
Markovic, S., 110

- Márquez, A.L., 105
Marquina, A., 36
Martín, A., 98
Martinez, A., 33
Martínez, E., 38, 41
Martí, P., 107
Martorell, S., 88
Mas, J., 2
Masching, H., 67
Massoud, H.H., 96
Más Tomás, A., 113
Mayer, P., 6
Mayoral, J.-M., 143
Mazet, P.A., 85
Mendonça, A.V., 115
Menezes Junior, R.A., 115
Migallón, H., 29, 31
Migallón, V., 29, 31
Milaković, I., 80
Milašinović, D.D., 80
Miles, J.C., 102
Milovanovic, B., 133
Mitrovic, C., 81
Mohamed, H.H., 96
Mondragon, R., 129, 131
Montalvo, I., 19, 22
Montenegro, R., 172
Montero, G., 172
Montoya, F.G., 105
Montoya, M.G., 105
Morabito, A.E., 109
Moraño, J.A., 25
Morillo, P., 76, 95
Morita, Y., 150
Motoyama, Y., 149
Mundani, R.-P., 78
Nakamachi, E., 150
Nakatani, M., 144
Nasu, S., 156
Navarro, C., 146
Nikolić, M., 80
Nonat, A., 123
Nouy, A., 44
Novak, J., 126
Ohyama, T., 1
Okeke, G., 118
Oliver, J., 26
Olmeda, F., 2
Ornek, M., 139
Ouisse, M., 163
Paiva, J.B., 115
Palau-Salvador, G., 12
Palazzo, G.S., 64, 65
Palma, R., 84
Palomino, J.A., 29
Patrinou, A.G., 90
Patzák, B., 69, 70, 127
Pedroche, F., 28
Penadés, J., 29, 31
Perea, C., 20
Pérez-Aparicio, J.L., 84
Pérez-García, R., 21, 22
Pérez, R., 19
Pericleous, K., 71, 74, 75
Peris, R.M., 36
Perrella, M., 61
Perus, I., 16
Pešková, Š., 148
Petrone, V., 51
Pini, G., 33
Pisaturo, M., 52
Pochard, I., 123
Presezniak, F., 128
Priede, J., 72
Procházka, P., 148
Psarropoulos, P.N., 147
Puigdollers, A., 152
Pulido, M., 166
Quadros, W.R., 56
Rahnejat, H., 50
Rainieri, C., 141
Rakić, P., 80
Rank, E., 78, 160
Rendall, T.C.S., 116, 157
Rezgui, Y., 102
Riabov, V.V., 130
Riera, J.V., 76
Ristic, M., 110
Robinson, C.T., 119
Roca, X., 58

- Ródenas, J.J., 2, 35
Rodriguez-Mccullough, R.J., 171
Rodríguez, E., 172
Rodríguez, G., 98
Rohan, E., 83, 137
Roller, S., 14
Romance, M., 27
Román, J.E., 12
Romero, N., 40
Romo, M.-P., 143
Ross, C.T.F., 171
Roy, A., 75
Royuela, A., 107
Ruiz-Gironés, E., 58
Rypl, D., 70
- Saad, R., 66
Sadoulet-Reboul, E., 163
Saif, M.A., 168
Samaras, V., 79
Sanchez, A., 88
Sánchez, E., 24
Sánchez-Merino, A.L., 146
Santucci de Magistris, F., 141
Sarrate, J., 58
Sawanobori, H., 158
Seifried, R., 100, 136
Sellier, A., 73
Senatore, A., 51, 52
Sheng, Y., 114
Shibata, Y., 1
Shih, M.H., 138
Siano, D., 49
Sienz, J., 79
Silva, J., 26
Sinwel, A., 112
Śmietański, M., 153
Šmilauer, V., 69
Snipes, J.S., 119
Soprano, A., 63
Sorge, U., 53
Sousa, L.C., 151
Stamos, A.A., 77, 103
Stankovic, M., 110
Stark, J., 125
Steenackers, G., 128
Suvajdžin, Z., 80
- Szabó, G., 159
Szalay, T., 17
Szendrői, E., 93
Szymczak, C., 153
- Taelman, L., 154
Tamarit, S., 26
Tan, Y.Q., 114
Theodossiades, S., 50
Thome, N., 24
Tirado, P., 166
Tomás, V., 20
Tomaszewska, A., 153
Torregrosa, J.R., 37, 38, 41
Trapeznikova, M.A., 169
Trčkova, J., 148
Trisovic, N., 81
Tsai, C.P., 82
Tsai, L.S., 124
Tsompanakis, Y., 147
Tukora, B., 17
Tung, S.H., 138
Tur, M., 35
Tzouvadakis, I.E., 77, 103
- Ukai, S., 18
- Vallés, M., 23
Varduhn, V., 78
Vasallo, A., 164
Vassilaki, D.I., 77
Vassilevski, Yu., 57
Venturin, M., 34
Vercher Sanchis, J.M., 113
Verdú, G., 32
Verron, E., 45
Vierendeels, J., 154, 162
Villanueva, J.-F., 88
Villanueva, R.J., 25
Villanueva-Oller, J., 25
Villon, P., 43
Vindel, P., 41
Vondrák, V., 8
- Walter, A., 152
Weng, M.C., 124
Wu, C.S., 140, 142
- Yamazaki, Y., 150

Yang, D.M., 114

Yildiz, A., 139

Zandi, S.M., 117

Zeman, J., 10

Zilli, G., 34

Živanov, Ž., 80

Zuo, Y., 18

Keyword Index

The numbers in this index are paper numbers.

- 2DPCA, 108
- $\{10\bar{1}2\}\langle\bar{1}011\rangle$, 120
- absolute nodal coordinate formulation, 112
- acoustic cavitation, 161
- adaptation, 59
- adaptive meshes, 172
- adaptive sampling, 116
- ADCIRC, 13
- adhesion energy, 121
- advancing front technique, 57
- aerodynamic optimisation, 157
- aeronautic structures, 109
- aggregation algorithm, 6
- alkali-silica reaction, 125
- analytic hierarchy process, 21, 90
- anisotropic metric, 59, 60
- annual time series, 166
- ANSYS, 171
- approximate Jacobian, 34
- arbitrary Lagrangian Eulerian finite element method, 158
- architectural, 77
- artificial neural networks, 51, 96, 106, 107
- asphaltic concrete mixtures, 106
- asymptotic analysis, 72
- asynchronous iterations, 29
- atomic force microscopy, 123
- augmented reality, 76
- automated discretization of partial differential equations, 66
- automatic visualization, 80
- automation, 103
- automotive transmission rattle, 50
- autoregressive modeling, 166
- availability, 88
- axially moving beam, 112
- B-splines, 70
- back-analysis, 141
- bacterial growth model, 118
- balance of stress equation, 144
- balanced source term, 165
- ball bearing, 81
- ballast, 136
- bearing capacity factor, 139
- Bernoulli-Euler beam, 112
- best approximation, 46
- biomechanics, 153
- Biot model, 83, 137
- block iterative methods, 32
- block preconditioners, 32
- blood flow, 151
- bonded particles, 136
- BOSS method, 6
- boundary element method, 43, 115
- box girders, 80
- brakes, 51
- bridge aeroelasticity, 159
- built infrastructure, 78
- bundle adjustment with self-calibration, 168
- buried pipes, 79
- business process management, 87
- C++, 67, 68
- CAD/CAE tool, 109
- CAGD-free optimization, 67
- cancellous bone, 150
- car riding model, 54
- cash flow, 92, 96
- cavity expansion theory, 140

cellular automata, 98
cement, 123
central schemes, 165
centrality, 27
chordal axis, 56
civil engineering, 95
classes of H-matrices, 30
clay, 139
clear sky, 172
close range photogrammetry, 168
cloud computing, 16, 18
cluster, 22, 114
clutch, 51
coach interaction, 63
coarse grid conjugate gradient method, 1
code portability, 68
cohesion, 123
collision mitigation, 167
communicating sequential processes, 26
communication network, 28
comparison matrix, 30
composite laminates, 65
composites, 122, 171
compressible Navier-Stokes equation, 156
compromise solution, 99
computational aerodynamics, 116
computational domain, 58
computational efficiency, 41, 42
computational fluid dynamics, 12, 71, 75, 132, 134, 151, 157
computational modelling, 118
computational steering, 78
computer aided design, 77, 103, 110, 115
concrete, 171
concrete arch dams, 161
concurrent programming, 26
conjugate orthogonal decomposition, 1
connected objective space, 99
consistent matrices, 21
constitutive model, 124, 143
construction, 86, 90
construction and demolition waste, 89
construction sites, 76
contact forces, 133
contact mechanics, 135
contact problems, 9, 35
contact shape optimization, 8
context dependencies, 87
continuity equation of sediment, 82
control, 100, 167
control space, 59, 60
controllability, 20
convection-diffusion equation, 47
convective heat transfer, 125
convergence, 37
convolutional code, 20
correlated random road inputs, 54
cortical bone, 152
cost, 88
Coulomb friction, 137
coupled consolidation, 33
coupling, 12, 14, 84
crack propagation, 62
creep, 124
crystal plasticity, 120
cure optimization, 65
cushion spring, 52
cutting force estimation, 17
damped Newton's method, 40
damping, 146
data compression, 145
data management, 113
DBuilder, 13
decision making, 21, 90, 102
decohesion, 10
decryption, 20
Delaunay triangulation, 57
delta function, 155
dendritic growth, 74
design conceptualisation, 109
digital image correlation, 138
digital terrain model, 77, 89
direct-simulation Monte-Carlo method, 130
discharge stage, 133
disconnected objective space, 99
discontinuous Galerkin time domain method, 85
discrete element method, 114, 133, 134, 136
discrete transformation, 117
distributed computing, 15, 19, 25
distributed memory, 29
distributed processing, 111
domain decomposition, 1, 2, 4, 7, 8, 9
Drazin inverse, 24

- droplets, 73
- dry clutch, 52
- dry friction, 51
- dual boundary element method, 62
- dynamic analysis, 164, 167
- dynamic explicit method, 150
- dynamic pull-in, 121
- dynamics, 100, 104
- efficiency, 27, 37
- efficiency index, 38, 41, 42
- elastic modulus, 149
- elastic multibody systems, 100
- electro-magneto-phoresis, 73
- electromechanical coupling, 121
- embedded sensors, 141
- emergency models, 107
- encapsulated, 142
- encryption, 20
- enhanced CGCG method, 1
- epidemic diseases, 25
- epidemiology, 98
- ESMF, 13
- evapotranspiration, 107
- evolution strategies, 99
- evolutionary algorithms, 102, 104
- exogenous data, 107
- experiment, 153
- exponential basis function, 117
- exponential box-scheme, 130
- face/edge library, 11
- failure, 136
- fan aero-acoustics, 128
- FETI-based solvers, 10
- FETI-DP, 5, 9
- fiber metal laminates, 62
- fictitious domain method, 155
- finite difference time domain method, 85
- finite element method, 2, 4, 11, 15, 35, 65, 67, 68, 69, 110, 113, 125, 126, 129, 131, 141, 144, 149, 150, 151, 152, 153, 155, 156, 161
- finite strip method, 80
- finite sum decomposition, 47
- finite volume time domain method, 85
- finite volumes, 64
- fire, 102
- fire extinguisher, 134
- first order adjoint equation, 149, 158
- fixing nodes, 5
- flexible pavements, 168
- flexible retaining wall, 141
- floating island city, 171
- floor plan design, 103
- flow, 137
- fluid force, 155
- fluid-particle interactions, 134
- fluid-structure interaction, 154, 158, 159, 160, 161, 162, 163, 164
- flutter, 159
- footing, 139
- footing size, 139
- four-dimensional, 95
- fourth order methods, 165
- frames, 115
- free surface, 71, 75
- frequency spectrum, 72
- friction, 7
- friction measurements, 51
- frictional contact, 112
- Frobenius normal form, 30
- full scale panel, 62
- fundamental solution, 117
- Galerkin proper generalized decomposition, 44
- gasoline direct injection, 53
- Gauss method, 37
- gear dynamics, 50
- general-purpose graphics processing units, 17
- genetic algorithms, 18, 99, 104
- geographic information system, 89, 97
- geological database, 97
- geomaterials, 136
- geometric nonlinear analysis, 80
- geometric problems, 39
- geometry decomposition, 58
- geotextile, 142
- global interpolation, 116
- global warming, 171
- Google App Engine, 18
- Google matrix, 28
- grade distribution, 97
- grammatical evolution, 101
- granular materials, 135

graph theory, 22
graphical user interface, 79
GRASS, 97
greenhouse crops, 105
grid computing, 111

h-adaptive refinement, 2
hammock activities, 91
harmony search optimization, 91, 92, 93
hash function, 113
heat equation, 43
heat fins, 162
heat protection, 130
heat transfer, 65, 129, 131, 132
heatflow network, 132
heating ventilation and air-conditioning duct systems, 110
hernia, 153
heterogeneous, 77
heuristic techniques, 91, 92, 93
hexahedral mesh, 58
hierarchical data structures, 2, 78
high direct current magnetic field, 71
high magnetic field, 72
high temperature, 148
high-frequency electric current, 75
high-order finite elements, 160
high-performance computing, 13, 15
high-throughput computing, 16
highway intersections, 170
H-matrix, 30
homogenization, 83, 119, 122
horizontal pressures, 133
hybrid methods, 91, 92, 93
hydrogen combustion, 130
hydrogen dispersion, 4
hyperbolic, 146
hypersonic flow, 130

ICE4RISK, 16
ideal gas law, 156
identification, 153
ill-conditioning, 36
ILU factorizations, 31
implementation, 26
implicit, 12
implicit scheme, 156

impregnation, 64
incomplete factorizations, 35
incompressible materials, 117
industry foundation classes, 78
inexact solver, 6
infinite element, 84
information technology, 111
input-state-output representation, 20
instrumentation, 143
inter-particle interaction, 135
interaction model, 133
interactions, 73
interface edges, 5
interface quasi-Newton, 154
interfacial modeling, 10
interior-point methods, 34
internet, 111
intersection collision warning systems, 170
inverse analysis, 122
inverse problem, 128
ion-ion correlations, 123
IQN-ILS, 162
irreducible and reducible matrices, 30
irregularity, 27
isogeometric analysis, 70
iterative function, 37
iterative methods, 3, 36, 39, 42
iterative solvers, 34

Kantorovich theorem, 40
kernel methods, 22
Krylov iterative methods, 35
Krylov subspace methods, 33

Lagrange multiplier, 155
landscape change, 23
landscape character, 23
landscape disturbance, 23
landscape indicators, 23
landscape metrics, 23
landslide monitoring, 138
large deformation, 83, 137
large eddy simulation, 12
lattice Boltzmann, 160
layout, 76
leaks, 21
line graph, 27

- linear work, 95
lined tunnels, 146
link analysis, 28
liquid composite molding, 64
liquid metal, 72
liquid metal processing, 75
lively footbridge, 164
load distribution, 81
local convergence, 36
locally conservative flux, 11
- machine design, 110
machining simulation, 17
macroscopic models, 169
magnesium, 120
magnetic damping, 72
magnetic levitation, 71, 75
magnetohydrodynamics, 71, 73, 74, 75
magnetostrictive materials, 84
maintenance, 88
majorizing sequences, 40
manipulators, 100
Marshall quotient, 106
material properties measurement, 71
mathematical modelling, 81, 98, 167
Matlab, 15, 170
maximum capital required, 96
maximum distance separable code, 20
maximum required capital due date, 96
Maxwell stress tensor, 84
Maxwell's equations, 85
McEliece cryptosystem, 20
mechanical properties, 148, 150
medial axis, 56
MEFEL, 68
membrane pump, 154
mesh adaptation, 57
mesh deformation, 116, 157
mesh generation, 56, 58, 59, 60
mesh motion technique, 154
mesh smoothing, 55
meshless method, 117
metaheuristic techniques, 91, 92, 93
METR, 68
micro-electro-mechanical systems, 121
micro-pump, 121
micro-screws, 152
- micromechanics, 119
microscopic models, 169
mid-surface, 56
mildly nonlinear elliptic boundary value problem, 42
mine, 97
minimal residual proper generalized decomposition, 44
minimax proper generalized decomposition, 44
mining management, 97
mining tremors, 145
model coupling, 13
model reduction, 44, 45
model refinement, 141
modified Newton method, 36
molecular interaction equation, 42
Monte Carlo simulation, 123
motorsport, 104
multi-agent systems, 22
multi-architecture, 14
multi-axial fatigue, 62
multi-body contact problem, 7
multi-body crash analysis, 63
multi-core, 31
multi-dimensional modeling, 53
multi-functional, 119
multi-hinged rig, 61
multi-lane traffic, 169
multi-mode resource-constrained project scheduling, 93
multi-objective evolutionary algorithms, 105
multi-objective optimization, 19, 99
multi-physics, 14, 127
multi-point iterative methods, 41
multi-scale, 69, 150
multi-scale aeroacoustics, 14
multi-scale finite element method, 122
multi-scale modelling, 83, 126
multi-sweeping, 58
- nail, 140
nanocomposites, 119
nanofluids, 118
nanomechanics, 119
natural coarse grid, 7
Navier-Stokes equations, 4, 155
Nelder-Mead algorithm, 65
nested domain decomposition, 2
neural networks, 145
Newton's method, 37, 38, 40, 41, 42

Nikkei stock average, 101
noise and pollutants control, 49
noise, vibration and harshness, 50
non-convex strain energy, 120
non-convex unbounded domain, 85
non-linear analysis, 161
non-linear conjugate gradient algorithms, 31
non-linear elasticity, 122
non-linear equations, 36
non-linear finite element, 84
non-linear kinematics, 67
non-linear systems, 37, 38, 41, 42
non-linear vibration, 163
non-physical, 129, 131
non-smooth equation, 137
NURBS, 70

object oriented design, 69, 127
object oriented environment, 70
object oriented finite elements, 66
object oriented programming, 67, 68, 115
Ohyorigi tunnel, 144
one-dimensional engine modelling, 49
open-source, 68, 97
optimal control, 54, 158
optimal design, 19
optimization, 21, 79, 88, 102, 103, 104, 128, 162
orbit determination, 37
order of convergence, 41, 42
orthodontics, 152
oscillating drop technique, 72
outlier, 108
overcharging, 123

p-finite element method, 160
PageRank, 28, 29
parallel algorithms, 29
parallel computing, 3, 11, 12, 15, 17, 19, 33, 78
parallel direct solver, 2
parallel island model, 105
parallel libraries, 31
parallel preconditioners, 31
parallel processing, 1, 4
parallel programming, 67
parallel solvers, 8
parallelisation, 14
parameter identification, 149

Pareto front, 99
parsing, 87
particle crushing, 136
particle swarm optimization, 88, 100
partitioned solution, 154, 162
pavement management system, 168
perfectly matched layer formalism, 85
performance function, 149, 158
performance-based earthquake engineering, 16
perfusion, 83
Perron eigenvalue, 21
Petri nets, 26
PETSc, 12
photonic stress analysis, 135
photovoltaic, 132
piezofan, 162
pile foundations, 147
planning, 95
polyethylene pipes, 79
porous media, 125
porous medium, 83, 137
post-buckling, 61
powder discharge, 134
Power method, 29
pre-applied stress machining, 114
preconditioning, 3, 6, 33, 34, 35
prediction, 96, 101
principal component analysis, 108, 145
Pro-Engineer, 171
process, 87
process automation, 79
programming, 95
project, 90
project total float, 86
proper generalized decomposition, 43, 44, 45, 46, 47, 48
proximity analysis, 78
pseudoelasticity, 120
public key cryptosystem, 20
pullout resistance, 140
pumping of biological fluid, 154
pWASH123D, 13
Python high-level interfaces, 31

quad-mapped meshpr109, 109
quadratic convergence, 38
quadratic programming, 9

- quantification, 89
quarry, 97
quasi-optimal mesh, 57
- radial basis functions, 116, 157
railway vehicle, 63
random network, 25
ranking algorithm, 28
RCPSP, 86
RCTPF, 86
real-sky, 172
reduced Kalman filter finite element method, 144
reduced model, 163
Reed Solomon code, 20
reflection method, 73
reliability, 88
repetitive calculus, 113
repository, 126
resilient modulus, 106
resin infusion, 64
resin reaction, 64
resource leveling, 93
resource optimization, 105
resource-constrained project scheduling, 91, 92, 94
rising seas, 171
risk assessment, 90
risk management, 90
robust, 108
robust scheduling, 94
rotor aerodynamics, 157
roughness, 168
rutting, 168
- saddle point problem, 35
sand, 139, 140
sand column, 142
satellite image, 138
scalability, 7
scalable algorithms, 9
scale effect, 139
scattered context grammars, 87
scheduling, 86
scratching test, 114
seismic analysis, 146
seismic assessment of structures, 16
semantics, 26
semilocal convergence, 39, 42
- sensitivity analysis, 52
separated representations, 44, 47, 48
setting out, 76
settlements, 143
shadows, 172
shallow water equations, 165
shape optimization, 100
shape parameterization, 116, 157
shared memory, 29
shear, 61
shear stress, 135
shear-lag effect, 80
shock-capturing term, 156
shoreline change, 82
shuffle algorithm, 24
SIFEL, 68
signal, 166
silicon carbide, 114
silo, 133
simplex, 65
simulated annealing, 103
singular systems, 24
size prediction, 60
skeleton, 56
slot and uniform gas injection, 130
slow-active suspension, 54
social networking, 28
software integration, 127
software toolkit, 11
software tools, 110
soil-structure interaction, 145, 146, 147
solar heat gain, 132
solar photovoltaics, 172
solar power, 172
solar radiation, 172
solar thermal, 172
spark ignition engines, 53
spatial augmentation, 78
spatial sorting and searching, 133
spent nuclear fuel, 126
split gasoline injection, 53
standard displacement elasticity, 117
stiction, 121
stochastic project scheduling, 94
Stokes flow, 73
strain-displacement equation, 144
streamline upwind Petrov Galerkin, 47, 156

strength, 136
stress distribution, 81
stress-strain equation, 144
strip packing, 91, 92, 93
strong rock, 136
structural analysis, 1, 70, 111
structural health monitoring, 141
structural models, 111
structural optimization, 45, 67
submerged permeable breakwater, 82
supercomputing, 14
surface roughness factor, 140
surveillance test, 88
surveying, 89
susceptible-exposed-infected-recovered, 98
Sutherland law, 156
swarm intelligence, 19
synchronous iterations, 29
symbolic derivation, 66
system reduction, 116
systems of equations, 36

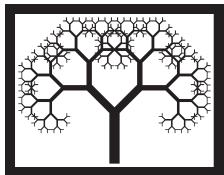
T-splines, 70
temporal integration, 163
tensor metric, 57
tensor product approximation, 44
tensor product Hilbert space, 46
tetrahedral mesh, 59, 60
thermal convection problems, 4
thermal simulation, 126
thermoelectricity, 74
theta method, 156
third order methods, 39
threads, 105
three-dimensional engine modelling, 49
three-dimensional modeling, 77
three-dimensional smoothed particle hydrodynamics, 148
three-dimensional surface meshes, 55
time chainage, 95
time dependent mild-slope equation, 82
time dependent neutron diffusion equation, 32
time multiscale, 48
trabecular bone, 150
traces, 26
traffic collisions, 170
transient models, 48

transmission dynamics, 25
transmitting boundaries, 146
transport equations, 129, 131
TRFEL, 68
triaxial compression test, 142
tunnel, 143
twinning, 120
two-stage methods, 31

untangling, 55

Valencia Orchards, 23
variational model, 10
vector variance, 108
vehicle design, 104
vehicle dynamics, 167
vehicle modelling, 104
vehicular traffic flow, 169
vibrations, 100
vibro-acoustic coupling, 163
virtual prototyping, 170
virtual reality, 95
viscosity, 64
visibility analysis, 78
visual impact, 23
visualization, 77
volume, 89
volume data, 116
Voronoi skeleton, 56
vortex-induced vibrations, 164

water distribution systems, 21
water supply networks, 19, 22
wavelet, 166
weak sandstones, 124
Web 2.0, 16
weighted gradient method, 149, 158
wheelbase preview, 54
wind tunnel model, 159
wind turbines, 147
Winkler springs, 147
wireframe primitives, 109



CIVIL-COMP PRESS
Stirlingshire, Scotland
mmx

