

Author Index

The numbers in this index are paper numbers.

- Abdalla, M.M., 112
Abdel-Fattah, T.T., 182
Abdullah, C., 159
Ackermann, W., 125
Adey, R., 174
Adhikari, S., 134
Afonso, A., 98
Akl, A.Y., 181, 182
Al-Ani, A.A., 170
Al-Azzawi, A.A., 170, 187, 188, 191
Al-Humaidi, H.M., 60, 62
Al-Kaabi, N.S., 29
Al-Mosawi, A.N., 187
Al-Shaarbaf, I.A., 187
Alavi, A.H., 86, 175
Albertos, P., 17
Aleixos, N., 149, 153
Algermissen, S., 116
Allen, C.B., 7, 100, 101, 102
Allix, O., 43
Almási, G., 122
Alves, M.A., 98
Andersen, L., 177, 189
Andersen, R., 5
Andersen, S., 177
Argiropoulos, C.D., 49
Ashby, S.L., 185
Askarinejad, A., 86, 175
Asproulis, N., 38
Aziz, R.J., 170
- Balabanidou, E., 55
Banicescu, I., 3
Barbosa, A.N., 108, 110
Barreto, S., 59
- Barth, T.J., 12
Bartlett, S., 42
Bavastri, C.A., 124
Behrens, A., 88
Bellenger, E., 18, 130
Bergamaschi, L., 75
Bijl, H., 16
Bittnar, Z., 53
Blasco, J., 153
Bordas, S., 20, 126
Bordeu, F., 90
Boucard, P.A., 40, 90
Boudouvis, A.G., 45
Branch, A.F., 184
Brenk, M., 9
Bru, R., 75
Bruggeman, P., 8
Buonsanti, M., 21
- Cahill, L., 20, 126
Camiña, C., 17
Camps-Valls, G., 153
Carbonell, A., 85
Caylak, I., 120
Chan, A.H.C., 2, 178
Chang, C.Y., 61
Chang, H.H., 35, 36
Chang, P.L., 34
Chassiakos, A.P., 63
Chen, H., 77
Chen, P.W., 128
Chen, Q., 64, 68
Chen, Y.T., 65
Cheng, H.-P., 183, 185
Cheng, J.-R.C., 185

Cheng, T.M., 31
Chiu, K.H., 128
Christolis, M.N., 49
Chu, D.H., 25
Chu, D.J., 25, 28
Chung, M.H., 103
Cimrman, R., 41
Coelho, P.G., 56
Company, P., 149
Contero, M., 149
Contrafatto, L., 24
Conway, W., 157
Coorevits, P., 18, 130
Croft, T.N., 10
Cross, M., 10
Csébfalvi, A., 83
Cuomo, M., 24

Davey, K., 121
De Breuker, R., 112
de Rochambeau, M., 106
DeGroat, J., 157
Degroote, J., 8
Dias, T.M.R., 92
Díaz De la O, F.A., 134
Djambazov, G., 50
Dolšek, M., 94
Dolenc, M., 94
Domgin, J.F., 50
Donnell, B.P., 183
Dostál, Z., 89
Doubrawa F., F.J., 124
Douka, E., 55
Doustar, M.F., 88
Drikakis, D., 38
Duane, J., 156, 157
Duhamel, D., 39
Dzeng, R.J., 27, 35

Edris, E.V., 183, 185
Elbeltagi, E., 66
ElKassas, E.M., 66
Elmarakbi, A., 118
England, S.M., 183, 185
Enright, T., 3
Erdal, F., 81
Escobar, J.M., 51

Eyheramendy, D., 19

Fang, J.J., 158
Farizal, F., 11
Feldgun, V.R., 166
Fernandes, P.R., 56, 59
Fernández-Pacheco, D.G., 149
Figueiredo, O.S., 190
Flórez, E., 70
Folgado, J., 59
Fonseca, J.E., 56
Fortin, J., 18, 130
Fukunaga, H., 118, 144

Galiano, V., 95
Gandomi, A.H., 86, 175
García, J.M., 123
García, M.D., 70
Gardin, P., 50
Gatuingt, F., 40
Gauß, F., 114
Gawin, D., 111
Ghysels, P., 37
Giacobbi, D.B., 48
Giannoutakis, K.M., 1
Gomes, E.F., 119
Gómez-Chova, L., 153
Gómez-Sanchis, J., 153
González, L., 74
Gonzalez-Vidosa, F., 85
Goodyer, C.E., 4
Gosselet, P., 87
Gountsidou, V., 142
Gravvanis, G.A., 1
Greene, T.R., 42
Grimpampi, E., 161
Guan, H., 57
Guessasma, M., 18, 130
Guimarães, M.M.L., 119
Guney, M.E., 132
Guo, S.J., 33

Habchi, W., 19
Hadipriono Tan, F., 60, 62
Hadjileontiadis, L.J., 55
Haelterman, R., 8
Haftka, R.T., 79
Hammoud, M., 39

Harte, R., 167
Hartung, F., 54
Hatzikonstantinou, P.M., 96
Hatzokos, I., 55
Hemada, A.A., 181, 182
Heshmati, A.A., 86, 175
Hilgert, T., 69
Horák, D., 89
Hoshikawa, N., 84
Hsu, C.H., 32
Hu, J., 2
Hu, N., 118, 144
Huang, C.P., 61
Huang, C.S., 28
Huang, R.Y., 30
Huang, Y.T., 165
Hueso, J.L., 72
Hussaini, M.Y., 14

Ibrahiem, A.M., 154
Ibrahimbegovic, A., 113
Ibsen, L.B., 189
Ichchou, M., 106
Iványi, A., 146
Iványi, P., 54, 194

Jaramillo, J.E., 104
Jeng, D.S., 173, 178
Jezequel, L., 106
Jiang, Z.Y., 138
Jimack, P.K., 4
Jira, J., 160
Jiroušek, O., 58
Jirova, J., 160
Johnson, N.W., 57
Jørgensen, K.A., 147
Júnior, R.M., 148

Kabele, P., 141
Kačianauskas, R., 129
Kalweit, M., 38
Kamara, A.M., 121
Kao, A., 46
Karinski, Y.S., 166
Karube, Y., 144
Kasbohm, J., 174
Kassiotis, C., 113
Kawashima, H., 23

Keimer, R., 116
Kim, H.K., 109
Kim, J.Y., 109
Kimbonguila, A., 130
Klopfer, G., 14
Ko, C.C., 26
Kokoli, E., 63
Kondo, S., 159
Koruga, D., 162
Kosmol, J., 117
Krivtsov, A.M., 145
Kruis, J., 76
Kučerová, A., 78
Kuo, T.H., 158
Kuzkin, V.A., 145
Kwan, A.S.K., 77
Kwon, Y.W., 42
Kytyr, D., 160

Ladevèze, P., 44
Lagaros, N.D., 180
Lazarević, M.P., 115, 162
Lebon, F., 22
Leclerc, H., 90
Lee, H.Y., 27
Lee, K.H., 109
Lee, Y.H., 109
Lefeuvre-Mesgouez, G., 176
Legoll, F., 39
Le Maître, O.P., 15
Lepš, M., 78
Letsios, Ch., 180
Lian, C.T., 25
Liang, S.J., 97
Liingaard, M.A., 189
Lin, C.A., 28
Lin, C.C., 32
Lin, C.Y., 61
Lin, H.-C., 183, 185
Lin, T.C., 36
Lin, W.S., 65
Lin, Y.C., 186
Liu, S.J., 34
Lo, S.S., 31
Lo, T.P., 33
Lo, W., 65
Loo, Y.C., 57

Lotfi, A., 91
Lu, L.T., 26, 186
Lu, W.Z., 105
Lubineau, G., 90
Lukeš, V., 41

Mackie, R.I., 93
Magalhães-Mendes, J., 67
Mahnken, R., 120
Mahran, E., 167
Maison-Le-Poëc, S., 43
Malafaya-Baptista, M., 193
Malla, N., 71
Margaritis, K.G., 6
Marin, J., 71
Marinaki, M., 80
Marinakos, Y., 80
Markatos, N.C., 45, 47, 49
Martínez, A., 75
Martínez, E., 72
Martínez, M., 95
Martins, C.J., 190
Martins, L.A., 190
Mathelin, L., 15
Matthies, H.G., 113
Mayer, P., 76
McCarthy, C., 20, 126
Mehl, M., 9
Melnik, R.V.N., 139, 140, 143
Mendonça, A.V., 148
Meredith, N., 57
Mesgouez, A., 176
Michailidis, P.D., 6
Mieszczak, W., 117
Migallón, H., 73, 95
Migallón, V., 73
Miles, J.C., 77
Mills, T., 68
Minh, Q.D., 20
Mirjalili, M., 175
Moeller, J., 157
Moghimi, S., 88
Mohsen, B., 191
Moita, G.F., 82, 92
Molnárka, G., 91
Moltó, E., 153
Monteiro, J., 59

Montenegro, R., 51
Montero, G., 51, 70
Morales-Espejel, G., 19
Morris, A.M., 101, 102
Morrison, J.P., 3, 5
Muntean, I.L., 9

Nagyváradi, A., 122
Natarajan, S., 20
Navarro, C., 168, 169
Naya, F., 149
Neckel, T., 9
Němeček, J., 58, 141
Néron, D., 44
Ngnepieba, P., 14
Nguyen, H.X., 20
Nguyen, V.D., 18
Nikolaidis, E., 11
Nivolianitou, Z., 49
Novák, J., 127

Odièvre, D., 40
Ohka, M., 84, 159
Oliva, A., 104
Oliveira, P.J., 98
Ortega, M.G., 123
Ou, J., 178

Païdoussis, M.P., 48
Paiva, J.B., 135, 148
Palomino, J.A., 95
Pan, N.F., 27, 35, 36
Papadopoulos, P.K., 96
Papadrakakis, M., 180
Pascual, E., 71
Pasculli, A., 161
Passieux, J.C., 44
Patel, M., 46
Pebrel, J., 87
Pedroso, L.J., 108, 110
Peixoto, R.A.F., 190
Penadés, J., 73
Pereira, J.P.G., 82
Perez-Segarra, C.D., 104
Pérez-Caparrós, D., 95
Pericleous, K., 46, 50
Pesavento, F., 111
Pinho, F.T., 98

Pinto, G.A., 119
Pitilakis, D., 171
Podzharov, E., 123
Polatoglou, H.M., 142
Pontari, A., 21
Poole, R.J., 98
Poroseva, S.V., 13
Power, D.A., 5
Principe, J., 111
Psaltaki, M.G., 47
Psarropoulos, P.N., 179
Pusch, R., 174
Putti, M., 75

Qiao, M.J., 192
Quigley, S.F., 2

Rabczuk, T., 20
Radó, J., 54
Ramon, H., 37
Reichard, G., 64
Rekanos, I., 55
Rekik, A., 22
Rendall, T.C.S., 7, 100, 101, 102
Rey, C., 87
Ribeiro, D.B., 135
Ribeiro, L.M., 119
Richards, D.R., 185
Rivera, M., 152
Rodrigues, H.C., 56
Rodríguez, E., 51
Rodríguez-Jiménez, E., 70
Rohan, E., 41
Romanazzi, G., 4
Roose, D., 37
Rose, M., 116
Ruiz-Gironés, E., 52
Rypl, D., 53

Sab, K., 39
Sacripanti, A., 161
Saif, M.A., 154
Saje, M., 137
Saka, M.P., 81
Sakita, K., 151
Saksala, T., 163
Salehzadeh, H., 86
Salt, J., 17

Samaey, G., 37
Sánchez-Merino, A.L., 168, 169
Sandoval, J., 17
Santos, L., 56
Sari, Z., 194
Sarmiento, H., 70
Sarrate, J., 52
Schäfer, M., 114
Schrefler, B.A., 111
Semler, C., 48
Sharan, S.K., 164
Shiau, Y.C., 25, 26, 28, 186
Shih, M.H., 165
Simić, J., 162
Sipeky, A., 146
Siromiatnikov, V.S., 123
Slone, A.K., 10
Souza, S.M., 108
Stamos, A.A., 150
Stavarakakis, K.S., 125
Stavroulakis, G.E., 80
Suárez, A., 70
Szakonyi, L., 194

Tan, K.H., 155
Theodorakopoulos, D.D., 63
Thuwis, G.A.A., 112
Tijskens, B., 37
Torregrosa, J.R., 72
Trochidis, A., 55
Troklet, B., 106
Tsompanakis, Y., 179
Tung, S.H., 131, 165
Tuominen, P.O., 133

Vadluga, V., 129
Vafeas, P., 96
van Staden, R., 57
Varley, P.A.C., 149
Vasić, V., 115
Venter, G., 79
Vergnault, E., 43
Vergne, P., 19
Vierendeels, J., 8
Vigueras, J.-F., 152
Vinter, B., 5
Voller, V., 46

Vosika, Z., 162
Voss, H., 69, 107
Vycichl, J., 160

Wang, L., 172
Wang, L.X., 139, 143
Wang, S.S., 32
Wang, W.C., 32
Wang, X.K., 105
Wang, X.Y., 105
Wang, Y.M., 128
Weeks, R., 183
Wei, D.B., 138
Weiland, T., 125
Weinzierl, T., 9
Wen, B., 140
Weng, M.C., 131, 165
Will, K., 132
Willatzen, M., 143
Williams, A.J., 10
Witteveen, J.A.S., 16
Wittig, T., 125
Wu, C.P., 128

Xenidou, T.C., 45

Yang, Q.Y., 105
Yang, S.C., 26, 186
Yankelevsky, D.Z., 166
Yao, H.H., 34
Yepes, V., 85
Yong, H., 99
Yoon, K.H., 109
Yu, C.C., 131, 165
Yu, W.D., 31, 34
Yuan, W.F., 136, 155

Zacharias, K., 55
Zamora, L.A., 123
Zania, V., 179
Zatezalo, A., 14
Zhang, L., 174
Zupan, E., 137

Keyword Index

The numbers in this index are paper numbers.

- acetabulum, 160
- acoustic, 110
- acoustic cavity, 108
- acoustic Doppler velocimeter, 105
- activation energy, 174
- active control of structures, 80
- adaptive grid refinement, 114
- adaptive mesh refinement, 15, 103
- advancing front technique, 53
- aerobic exercise, 157
- aerodynamic, 101, 102
- aeroelastic tailoring, 112
- aeroelasticity, 7, 100
- aggregation algorithm, 76
- air curtains, 104
- air-lifting method, 186
- Aitken under-relaxation, 8
- all-in-one integrated, 68
- alternative technique, 135
- AMLS, 69, 107
- amplitude, 109
- analytical hierarchical procedure, 32
- ANGEL heuristic method, 83
- angular velocity, 137
- apparent modulus, 58
- architect-engineering consultant, 34
- artificial body force, 136
- artificial diffusion, 19
- asphalt, 175
- association rule mining, 35
- asymptotic analysis, 22
- asymptotic behaviour, 16
- atmospheric diffusion simulation, 192
- atmospheric pressure, 186
- automated multi-level sub-structuring, 69, 107
- automatic code generation, 116
- autonomous cooperation, 84
- autoregressive integrated moving average, 36
- ballast, 39
- Bayesian prediction, 14
- Bayesian statistics, 134
- beams, 128, 187
- bedform, 105
- bending, 128
- bending moment, 181
- bidding, 30, 32
- binary spatial partitioning, 150
- binary-alloy, 46
- bioinformatics, 6
- biological tissue, 21, 37
- biomechanics, 162
- biomedical engineering, 156, 157, 162
- Biot theory, 176
- block-structured grids, 114
- body building, 156, 157
- body mass distribution index, 156, 157
- body mass index, 156, 157
- body waves, 169
- body-centred-cubic iron, 138
- bone damage assessment, 55
- bone mineral density, 56
- bone quality, 56
- bottom binary n -tuples, 74
- boundary elements, 135, 189
- boundary point method, 127
- bridge collapse, 60
- bridge failure, 60
- bridge performance, 35, 36
- brittle plastic rock, 164

Brownian motion, 161
building, 61
building information modelling, 64
building medical records, 61
building medicine, 61
bundle structure, 109
Burgers' equation, 14
buried structures, 168, 169
burst-and-coast swimming, 103

CAD/CAE, 151
CAE pre-processors, 149
calibration, 185
canister settlement, 174
cantilever, 10
carbon nanotube, 144
CardiffGA, 77
Cartesian grids, 9, 103
CdS, 140
cells with large mass ratio, 99
cellular automata, 155
cellular beams, 81
cement, 175
cement layer, 160
cement paste, 141
central piles, 181
chemical process, 45
civil engineering, 94
claims, 65
classification, 147
clay, 174
close range photogrammetry, 154
cluster computing, 4, 95
cluster of heterogeneous workstations, 6
co-planarity, 152
cold box, 120
colour, 152
combinatorial optimization, 81
community of practice, 34
compact functions, 7, 100
compiler directives, 88
complex many-particle systems, 161
complex stochastic Boolean systems, 74
complex systems, 159
component-oriented design, 93
composite medium, 127
composites, 42, 90
composition, 147
compressional and frictional, 188
compressive strength, 86
computational electromagnetics, 71
computational fluid dynamics, 12, 45, 47, 48, 49, 101, 102, 104, 114
computational heuristics, 82
computed tomography, 58
computed torque control, 116
computer aided design, 150
concrete, 142
concrete compression strength, 36
concrete structures, 111
conductance, 18
conical, 170
conjugate gradient, 70
conservation of total momentum, 99
consolidation, 173, 178
constrained particle swarm optimisation, 79
construction, 31, 63
construction delay, 62
construction management, 67
construction site, 68
constructive systems, 190
contact, 18, 40, 89, 91
contact constraints, 163
contact stress, 23, 160
continuous casting, 50
convergence rate, 78
conveyor, 123
cooling tower, 167
cost item, 32
cost optimization, 66
coupled method, 166
coupled surface-subsurface model, 185
coupling, 39
coupling environment, 9
creep, 174
critical speed, 124
crowns modelling, 158
cut cell, 103
cut-off wall, 183, 184
cutting, 117
cutting forces, 117
cylindrical rod, 109
cylindrical shells, 172

dam-break, 97
damage, 87
damage deactivation, 163
damage material modelling, 117
damage mechanics, 163
damaging behaviour, 24
data mining, 92
database, 25, 28, 61
decision making, 29, 63
decohesion elements, 118
decomposition approach, 185
deep, 187
deep beams, 188
deflections, 191
deformations, 179
delamination growth, 118
delayed recovery, 141
dendritic-growth, 46
dental fabrication, 158
dental implant, 57
design codes, 180
design of experiments, 123
deterioration, 35
differential equation, 137
differential evolution, 78
differential settlement, 181
digital hologram, 151
digital image correlation, 165
digital representation, 53
direct solution, 132
discrete approach, 39
discrete element method, 18, 129, 130, 131
discrete shear theory, 148
discrete time systems, 17
distributed computing, 1
distributed computing, 93
distributed systems, 95
domain decomposition method, 40, 43, 44, 87, 89, 91
domain element, 101, 102
double pipe network, 193
drilling, 117
dual energy x-ray absorptiometry, 56
dual sports, 161
dynamic analysis, 118
dynamic behaviour, 109
dynamic fluid structure interaction, 10
dynamic neutralizers, 124
dynamic of rigid bodies, 115
dynamics, 3, 48, 129, 171, 189
e-beam, 122
e-tendering, 30
ecological engineering methods, 25
eigenvalue, 69, 107
eigenvector, 69, 107
elastic, 188
elastic foundations, 170, 191
elastic instabilities, 98
elasto-acoustic system, 106
elasto-plastic analysis, 181, 182
elastohydrodynamic lubrication, 19
electrical property, 144
electrostriction, 143
embankments, 179
embedded discontinuities, 24
enabling causes, 60
engineering firm, 29
engineering management, 29
engineering materials, 142
enthalpy, 46
entity-relationship model, 25
entropic flow pattern, 193
environmental impact assessment, 192
environmentally conscious design, 151
equation of state, 145
equivalent linear, 171
ER model, 28
error, 14
error analysis, 15
evidence theory, 13
evolution, 138
evolutionary algorithms, 45, 67
evolutionary behaviour table system, 84
explicit time integration, 163
extended finite element method, 20, 126
extrusion, 10
factors, 32
fading memory, 41
fast Fourier transform, 127
fault rupture, 179
fault tree analysis, 60
ferrofluid, 96
FETI-DP, 89

field models, 49
 field programmable gate array, 2
 fill-in reduction, 132
 filtering, 171
 finite difference, 191
 finite element method, 1, 2, 22, 23, 41, 52, 57, 131, 148, 190
 finite element modelling, 56, 117, 160
 finite elements, 19, 48, 59, 93, 108, 129, 133, 159, 164, 170, 181, 182, 187, 189
 finite integration technique, 125
 finite volume method, 12, 45, 114
 finite-infinite-element modelling, 167
 finite-volume method, 47
 first-principle molecular dynamic calculations, 140
 flat shell, 148
 flexible pavements, 154
 flexible tube, 8
 flow bifurcation, 98
 flow structure, 105
 fluid dynamics, 16
 fluid pressure, 23
 fluid saturated porous materials, 41
 fluid-structure interaction, 8, 9, 16, 43, 48, 106, 107, 108, 109, 110, 113
 fluid-structure interpolation, 7, 100
 Formula One, 112
 foundation, 187
 Fourier error analysis, 8
 Fourier transform, 176
 fractional calculus, 162
 fracture, 129
 fragmentation, 130
 free formulation, 148
 frequency analysis, 162
 frequency response, 17
 friction, 18, 40
 friction heat, 23
 fruit inspection, 153
 full-system approach, 19
 function modules, 192
 fuzzy control, 80
 fuzzy controller, 62
 fuzzy fault tree, 60
 fuzzy logic, 60, 62
 fuzzy model, 60
 fuzzy set, 60, 62
 gaussian stochastic process, 134
 generalized bottom binary n -tuples, 74
 generalized top binary n -tuples, 74
 genetic algorithms, 27, 65, 66, 67, 70, 78, 84
 geographical information system, 25, 28
 geometric conservation, 10
 GMS, 183, 185
 Godunov method, 166
 gradient based optimization, 54
 granular materials, 39
 granular media, 18, 130
 graph compression, 132
 gravel river bed, 105
 grid, 5
 grinding process, 130
 Gruneisen, 145
 hardware acceleration, 2
 hardware-efficiency, 9
 harmony search algorithm, 81
 head losses, 193
 heat conduction, 23, 155
 heat transfer, 18
 Herbert Hoover Dike, 183
 heterogeneous, 3
 heterogeneous solids, 129
 heterostructures, 143
 heuristic optimization, 85
 hexahedral element, 52
 high performance computation, 90
 high performance concrete, 86
 high-fidelity simulations, 14
 high-throughput computing, 94
 highway, 63
 hip replacement, 59
 Hodgkin-Huxley model, 159
 homogenization, 22, 41
 homogenized approach, 39
 homography, 152
 Hooke-Jeeves algorithm, 119
 hospital building, 33
 hot wire anemometry, 104
 human factors, 29
 human skin, 159, 162
 hybrid method, 172
 hybrid molecular-continuum, 38
 hybrid system, 27

ICD-9-CM, 61
identification, 194
IGTSP scheme, 99
ILU factorizations, 73
image analysis, 153
impact analysis, 183
impervious, 184
implant design, 59
importance sampling, 11
imprecise probability, 11
inclusion, 127
incomplete factorization, 70
inexact Newton method, 75
inferential control, 17
infinite domains, 135
information interoperability, 68
information modelling, 147
information recovery, 92
information transfer, 7, 100
innovative building materials, 26
integral equation, 127
integrated modelling, 111
integration, 137
intensive insulin therapy, 156
interface, 182
interface damage, 22
interface issues, 64
interface management, 64
interface object model, 64
interface preconditioner, 91
interface strength, 42
Interface-GMRES(R), 8
interfaces, 24, 50
International Classification of Building Diseases, 61
international environment, 29
interpolating recursive subdivision, 53
intrinsic order, 74
inverse dynamic model, 116
iterative methods, 71, 76

Jacobi-Davidson, 71

Karhunen-Loève expansion, 134
knowledge base, 26
knowledge management, 34
knowledge map, 26
Krylov iterations, 75
Krylov subspace method, 69

lamination parameters, 112
landfill cap, 184
landslides, 177
large deformations, 9
large eddy simulation, 104
large rectangular plates, 191
lateral loads, 182
LATIN, 44
lattice, 129
lattice mismatch, 143
LCS computation, 6
leakage, 23
least-squares finite-element, 97
level sets method, 126
life cycle cost, 33, 63
lighting system, 153
lime, 175
limit cycle oscillations, 16
linear, 66
linear genetic programming, 86, 175
linear programming, 52
lined cavity, 166
Love waves, 168
low Reynolds number, 98
low-fidelity simulations, 14

machine vision, 153
magnetic field computation, 146
magnetic hysteresis, 146
magneto hydrodynamics, 96
maintenance, 61, 63
maintenance decision-making, 35
maintenance management, 33
Mamdani procedure, 62
mandarins, 153
manufacturing process, 123
marine sediment, 173, 178
market basket analysis, 35
masonry structure, 22
mass consistent models, 70
mass customisation, 147
mass transfer network, 194
master-worker, 6
material model, 117
material point method, 177

material science, 151
mathematical modeling, 162
mechanical properties, 142
mechanical seal, 23
mechanical stress, 146
mechanical well cleaning, 186
mesh adaptation, 51
mesh alignment, 51
mesh coarsening, 132
mesh generation, 52, 53
mesh smoothing, 54
meshless methods, 127, 128
Message Passing Interface, 6
metal-backed cup, 59
metal-organic chemical vapor deposition, 45
MHD, 46
microcontacts, 21
microlevel modelling, 141
micromechanics, 141
micropolar flow, 96
microscopic mechanism, 165
microstructure, 53, 105, 174
midpoint scheme, 137
MiG, 5
mildly nonlinear systems, 73
minimum weight design, 81
mix design, 86
mixer-settler, 119
mixing, 172
mixing-separating, 98
mobile computing device, 68
modal analysis, 106
model order reduction, 125
ModelCenter, 112
modified Lagrange method, 115
modularity, 9
Mohr-Coulomb criterion, 131
Mohr-Coulomb plasticity, 163
molecular dynamics modelling, 138
moment matching, 69
moments, 128
monitoring system, 167
Monte Carlo simulation, 134
moving load, 176
moving meshes, 51
MPI, 95
multi-agent, 84
multi-grid, 114
multi-layer perceptron, 86, 175
multi-layered ground, 176
multi-level numerical software, 4
multi-modal problems, 78
multi-model approach, 13
multi-objective optimisation, 79
multi-rate systems, 17
multi-scale, 37, 39, 43
multi-scale computational method, 40
multi-scale modelling, 38, 41, 42
multi-scale product simulation, 151
multi-span structure, 109
multi-variable control, 17
multi-variate Krylov subspace methods, 125
nanocomposite, 144
nanocrack, 138
nanofluidics, 38
nanoindentation, 58, 141, 142
nanostructures, 139
nanowires, 139
Nastran, 112
neural network, 159
Newton's method, 72
niching strategy, 78
node amalgamation, 132
node movement, 51
non-destructive evaluation, 55
non-disruptive genetic algorithms, 77
non-homogeneous, 135
non-linear, 90
non-linear acoustic dissipation, 55
non-linear analyses, 190
non-linear optics, 122
non-linear problems, 87
non-linear structural behaviour, 167
non-linear system, 72
non-linear ultrasound, 55
non-local models, 139
non-uniform, 188
normalized approximate inverses, 1
numerical analysis, 188
numerical methods, 135
object-oriented, 64, 93
object-oriented analysis and design, 147

occlusal surface, 158
oil spill, 47
OpenMP, 88
optical tracking, 158
optimization, 65, 82, 101, 102, 106, 123, 124, 180
optimum structural design, 81
organizational factors, 29
osteoporosis, 56

parallel, 101, 102
parallel algorithms, 6
parallel architecture, 3
parallel computing, 44, 73, 88, 190
parallel distributed algorithms, 4
parallel generalized minimum residual method, 1
parallel preconditioned conjugate gradient method, 1
parallel processing, 90
parallel robot system, 116
parallelisation, 10
parameter tuning, 119
parameterized systems, 125
parametric studies, 40, 94
parametrization of rotation, 137
particle swarm optimization, 80
particles dynamics method, 145
partition of unity methods, 20
partitioned approach, 9
partitioned solution, 8
partitioned strategy, 113
patent analysis, 31
pavement management system, 154
pavements, 63
pelvic bone, 160
perfect crystals, 145
performance evaluation, 34
performance evaluation and prediction, 4
performance-based earthquake engineering, 94
periodically poled lithium niobate, 122
permeability, 184
personal digital assistant, 68
perturbation, 127, 164
phase transformations, 139
physical interface, 64
PID controller, 115
piezoelectric, 143
pile foundation, 180
piled raft, 181, 182

pipe, 148
pipe failure, 193
pipe resizing, 193
pipes conveying fluid, 48
plane trusses, 82
plastic strain, 165
plate problems, 76
plates, 128
point collocation, 128
point wise coupling, 38
political factors, 29
pollutant dispersion, 49
pollution source survey, 192
polyethylene, 59
polymeric fluids, 38
polynomial chaos, 15
pore pressure, 178
porewater pressure, 184
porous media, 75
posterior, 14
pre-processing, 132
precast construction technology, 31
preconditioned conjugate gradient, 2
preconditioning, 1, 70, 71, 76
prediction, 36
preservation of symmetry, 99
price, 30
procedural causes, 60
procurement, 30
product configuration, 147
product design, 151
product family modelling, 147
project delay, 62
project delay enabling causes, 62
project management, 67
public resource computing model, 5

Quadratic convergence, 72
quadratic programming, 89
quality measures, 54
quantum dots, 140
quasi phase matching, 122
quasi-Newton method, 75
quasi-static analysis, 118
quaternion, 137

R-adaptivity, 51

radial basis function coupling, 7, 100
radial basis functions, 101, 102
random keys, 67
random parameters, 16
RANS/LES, 104
rational eigenproblem, 107
Rayleigh waves, 168, 169
RCPS, 67
re-analysis, 11
reconfigurable computing, 2
reduced-order models, 8
refinement scheme, 15
registering, 152
reliability, 78
reliability engineering, 74
repetitive projects, 66
representative volume element, 37
reproducing kernels, 128
residential construction, 64
residual pore pressure, 173
residual stress, 121
resort development, 27
resource allocation, 63, 65
restoration, 25
Richtmyer-Meshkov instability, 172
rigid inclusion, 166
RNG ($k - \varepsilon$) turbulence model, 47
road vaults, 85
rock burst, 164
rock fracture, 163
Rodriguez method for symbolical calculation, 115
rotordynamics, 124
roughness, 154
RTL simulations, 95
rutting, 154

S-curve, 65
sampled-data systems, 17
sand, 120
sandbox, 5
scalability, 10
scalable algorithms, 89
scarf joints, 42
scheduling, 66, 67
Schur complement, 91
SEA-like method, 106
sealing, 23
second harmonic generation, 122
SEEP/W, 184
seepage, 184
segmentation, 152
seismic analysis, 168, 169
seismic analysis of tunnels, 168
seismic design, 179
self organization, 161
semi-analytical approach, 176
seminorm, 91
service oriented architecture, 92
shallow-water equations, 97
shape optimization, 45
shape parameterisation, 101, 102
share rate, 192
shared memory, 88, 95
shearing, 174
shell foundation, 190
shells, 170
shifted linear systems, 70
shock wave diffraction, 166
shock waves, 16
simplified modelling, 182
simulation, 13, 27, 47, 67, 90
simulation of liquid-liquid systems, 119
simultaneous sizing-shaping optimization, 83
singular integral, 136
sketch-based interfaces, 149
slip boundary conditions, 38
slope stability, 177, 179
smart structures, 80
smectite, 174
smoke plume, 49
smoothed finite element method, 20
softening, 171
software, 68
soil dynamics, 177
soil half-space, 167
soil plasticity, 178
soil-bentonite, 184
soil-foundation-structure interaction, 171
soil-structure interaction, 166, 167, 168, 169, 189, 190
solitary wave, 97
sparse linear systems, 1
sparse matrix, 69, 107
spatial model, 151
spatial rotation, 137

spectral low rank updates, 71
 spectral methods, 143
 speed up, 88
 speed-power ratio, 103
 spherical shell, 133
 sport biomechanics, 161
 stabilised soil, 175
 staggered mesh, 99
 standing wave, 97
 statistical analysis, 30
 statistical energetic analysis, 106
 steel bridges, 83
 stereo, 152
 stochastic finite element method, 15, 16, 134
 stochastic modelling, 161
 stochastic partial differential equations, 134
 stochastic resonance, 159
 stochastic search techniques, 81
 strain sensor, 144
 strain smoothing, 20
 strategy planning, 31
 stresses, 128
 strong discontinuities, 24
 structural design, 85
 structured mesh, 52
 submapping, 52
 substructure, 171
 subsurface flow, 183
 super-element, 132
 superobjects, 25
 surface mesh smoothing, 51
 surface waves, 168
 sustainable construction, 63
 symmetric Galerkin boundary element method, 136
 SystemC, 95

tactile sensing, 159
 tank fire, 49
 technology innovation, 31
 temperature and rate dependence, 120
 temperature-dependent phase stability, 140
 textural properties of soil, 175
 theory, 133
 thermal spalling, 111
 thermal spray coatings, 121
 thermo-mechanics, 21
 thermodynamical properties, 145

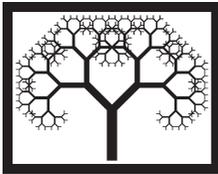
thermoelectricity, 46
 time and space multiscale, 44
 time series analysis, 36
 Timoshenko beam, 168
 tissue perfusion, 41
 Toeplitz, 127
 top binary n -tuples, 74
 trabecular bone, 55, 58
 transfinite interpolation, 52
 transient, 110
 transient dynamic, 40
 triangular loop, 193
 triaxial test, 120
 triggering causes, 60
 tunnel fire, 111
 turbulence, 47, 49, 50, 104
 turbulent flow, 105
 twin tunnels, 168, 169
 two-phase flow, 47, 75, 194
 two-stage methods, 73
 type 2 diabetes, 156, 157

unbounded media, 164
 uncertainty quantification, 12, 13, 15, 16
 unconfined compressive strength, 175
 undercooling, 46
 underground excavation, 164
 undulatory propulsion, 103
 uni-axial compression test, 131
 unit price, 32
 unsteady problems, 16
 updating preconditioners, 75
 uplift, 184
 upper-convected Maxwell model, 98

validation, 185
 variational difference method, 166
 vector equations, 133
 velocity potential, 108
 vibration control, 124
 virial stress, 37
 virtualisation, 3
 viscoelastic fluids, 98
 viscoelastic material, 124
 viscoelasticity, 162
 void fraction calculation, 194
 volunteer computing, 94

vortex shedding, 97
VSAERO, 112

wall opening, 183
WASH123D, 183, 185
washing machine, 115
water tank, 167
watershed model, 185
wave modulation, 55
wave nonlinearity, 173
wave spectrum, 88
wavenumber results, 176
weak sandstone, 165
weak/strong coupling, 113
wear, 59
web mining, 92
web services, 92
WebCom, 3, 5
WebGIS, 28
Weibull distribution, 163
weighted essentially non-oscillatory shock-capturing
method, 172
Weyl's fractional derivative, 162
wind modelling, 70
Winkler foundation, 188
Winkler model, 168, 170, 187
workability, 86
workflow, 5



CIVIL-COMP PRESS
Stirlingshire, Scotland
mmviii

