Index

| C^1 solution, 18 | equation |
|--------------------------------------|----------------------------------|
| ϵ -approximate solution, 21 | integral, 3 |
| k-step LMM, 64 | equation of variation, 25 |
| a priori estimate, 20 | equations |
| accurate of order n 57 | parabolic, 119 |
| accurate of order p, 57 | equicontinuous, 10 |
| adjoint system, 34 | equilibrium point, 46 |
| asymptotically stable, 46 | error |
| autonomous system, 19 | local truncation, 56 |
| basis | exhaustion |
| orthonormal, 101 | compact, 87 |
| bounded, 17 | explicit, 65 |
| • | exponents |
| pointwise, 10 | conjugate, 86 |
| characteristic polynomial, 62 | finite domain of dependence, 114 |
| closed linear span, 97 | fixed point, 4 |
| closed subspace, 95 | fixed-point iteration, 4 |
| coefficients | formal series, 106 |
| Fourier, 99 | Fourier coefficients, 99 |
| compact exhaustion, 87 | Fourier series, 106 |
| complete orthonormal set, 101 | functional iteration, 4 |
| conditions | fundamental matrix, 31 |
| initial, 2 | fundamental modes, 115, 118 |
| conjugate exponents, 86 | fundamental set, 31 |
| consistency, 55, 58 | 1.11 |
| consistent LMM, 67 | general linear group, 50 |
| constant | general solution, 33 |
| Lipschitz, 5 | general solution of (LH), 35 |
| continuity, 23 | general solution of (LI), 35 |
| continuous, 17 | Hilbert space, 94 |
| locally Lipschitz, 15 | homeomorphism, 28 |
| contraction, 4 | nomeomorphism, 20 |
| , | implicit, 65 |
| Dahlquist root condition, 68 | initial conditions, 2 |
| differentiability, 23 | inner product space, 93 |
| differential operator | integral equation, 3 |
| linear, 31 | isomorphism |
| • | • |

Index 121

| unitary, 101 iteration fixed-point, 4 functional, 4 Lebesgue measurable, 78 linear, 25 linear differential operator, 31 linearization, 25 linearized, 25 Lipschitz constant, 5 local truncation error, 56 locally Lipschitz continuous, 15 Lyapunov function, 49 Lyapunov Stability, 46 matrix | seminorm, 85 series formal, 106 Fourier, 106 set complete orthonormal, 101 fundamental, 31 orthogonal, 99 orthonormal, 99 solution general, 33 space Hilbert, 94 inner product, 93 span closed linear, 97 |
|--|---|
| fundamental, 31 measurable Lebesgue, 78 modes | spectral abscissa, 50 stability, 58, 59 stable, 46 summability kernel, 106 |
| fundamental, 115, 118 | trigonometric polynomial, 105 |
| normalized at time τ , 34 one-step LMM, 68 operator linear differential, 31 orthogonal set, 99 orthogonality, 95 orthonormal basis, 101 orthonormal set, 99 complete, 101 | Uniform Boundedness Principle, 99 uniformly Lipschitz continuous with respect to x , 5 unitary isomorphism, 101 wave equation, 111 well-posed problem, 53 Wronskian, 32, 41 zero-stable LMM, 68 |
| parabolic equations, 119 particular solution of (LI), 35 perturbation equation, 25 point fixed, 4 pointwise bounded, 10 polynomial characteristic, 62 trigonometric, 105 positive definite function, 49 problem well-posed, 53 | |