

# A Bibliography of Publications by, and about, Garrett Birkhoff

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## Abstract

This bibliography records publications of Garrett Birkhoff.

-algebras [BBK22]. -modules [AR12].  
-periodic [KdC05]. -semigroups [Bir64d].  
-Stage [NBNTG12, NBBKV10,  
NBNTGV11, NB16, YNBV11]. -th [CSV80].

## Title word cross-reference

11 [NBBKV10]. 14 [YNBV11]. **\$17.50**  
[Bir77c]. 2 [KdC05]. 3  
[NBNTGV11, YNBV11]. 4 [NB16, YNBV11].  
7 [NBBKV10, NBNTG12].  $^{-1}$  [CRUV00].  
 $B(H)$  [AR15].  $C^*$  [AR12, BBK22].  $C_0$   
[Bir64d].  $k$  [NTNBV14].  $\mathcal{B}(H)$  [AGK<sup>+</sup>21].  $N$   
[Kal93, CIL07, CSV80, RS81].  $R^4$  [BGT95].  
 $T^*T^n$  [BC06].  $U_q[gl(m|n)]$  [De 03].  
 $wU_{r,s}^d(osp(1|2n))$  [LY13].

**1.2** [Kal93]. **11th** [BW61]. **12.50** [GG75].  
**16th** [Bir78a]. **1862** [Bir56b]. **1900** [Bir79e].  
**1960** [BBL62]. **1967** [BBAS69]. **1968**  
[BV70b, BV70a]. **1970** [BH71]. **1973**  
[Ano77]. **1978** [Bir79f]. **1980** [Sch81]. **1981**  
[Bir83a, Bir83b]. **1992** [Bir97]. **1996** [Var98].  
**19th** [Bir78a].

**2C** [KRYG82]. **2ième** [MB73].

**3** [Anoxx].

**5-stage** [NBHYV09]. **586** [KRYG82].

\* [Sun91].

**6** [BV59a].

**8-stage** [NTNBV14]. **80** [Bir74c].

**A.** [Bir62b]. **Abbildungen** [Lie18]. **Abel** [SP68]. **Abelian** [Bir34l, Bir34r]. **Abrégé** [Bir79e]. **Abstract** [Bir35b, Bir35a, Bir35c, Bir35l, FGP10b]. **Academia** [Bir74b]. **Academic** [Anoxx, Bir64b]. **Accelerated** [KRYG82]. **Accurate** [BF70]. **acoustics** [Bir85, Bir86]. **actions** [Bew71]. **Active** [SUB12]. **acyclic** [ACDM14, CdFM08, Fer15, kJ16, CdFM09]. **Adaptive** [KRYG82]. **Added** [BL80, BBL84]. **Advanced** [Ann33, AR34, Bir34q, BRW35, CB34, Dun35, DS35, Esc34, ERG<sup>+</sup>35, GL35, JS35, ØB37]. **Advances** [Anoxx]. **Adventures** [Bir77c]. **Ahlberg** [Bir69c]. **airfoil** [Bir46c]. **Albedo** [Bir60a]. **Algebra** [BM41, BM53, BM65a, BM65b, BB70a, BB70b, BH71, BB73, Bir76h, Bir76g, BM77, BL97, Cor96, MB67, MB79, MB88, RO87, Bir74a, Bir34b, Bir44b, Bir46a, Bir46e, Bir46f, Bir71e, Bir72b, Bir73a, Bir74c, Bir74d, BL74, Bir76b, Bir76c, Bir76f, Bir79a, Bir80a, Bir82c, BTL99, BCGVS11, Bir46a, BB73, Bog71, Bog85, Klo72, Mew67, Bir74b, BM92]. **Algebraic** [RMKPZ22, BBK22, Bir34f, Bir34g, GKM04, GZ08, Hoo75]. **Algebras** [LS93, Bau98, BBK22, Bir35e, Bir35l, Bir36h, Bir37j, BW39, BB46, BW49, BL70, MS92]. **Algèbre** [MB70, MB71, MB72, MB73, MB76, MB96, MB73]. **algorithm** [BBC88, Bru82, JDM60, LCXL11, KRYG82]. **Algorithmic** [SW08, LLL86, Müh81]. **alla** [Ven02]. **Allouch** [MB73]. **Almost** [Tau61b]. **Alt** [Anoxx]. **Alternating** [BV57a, BVY62, BV59b]. **alternative** [CC03]. **Amer** [Bir74c]. **America** [Tar77]. **American** [BL59, BW61, BBL62, BV70b, Gum66, Sec62, BBAS69, BH71, Bir77d, Tar77]. **analogue** [Gol01]. **Analysis** [Bir48c, BV70a,

Bir73e, Bir78a, GG75, Gum66, Tau63b, Var62, BK52, Bir67b, Bir73c, Bir80a, BK84, FGK<sup>+</sup>63, Kop75, Ano77]. **Analytic** [BY50, BAS70, Bir72d, Lor82, MCS11]. **Analytical** [Bir38a, Let76]. **and/or** [Fin08]. **Angenaharte** [Lie18]. **Angewandte** [BB73]. **Angular** [Bir71c, Bir72a]. **anharmonic** [AWD86]. **anniversary** [BM92]. **annual** [Tar77]. **Appendixes** [Bir56b]. **application** [BdPK07, Ric11]. **Applications** [BD04, Bir34b, KLR19, LL07, Bir38c, Bir49c, BSV68, Bir82c, Bir95, Bir69c]. **Applied** [BL59, BW61, BBL62, BB70a, BB70b, Bir77b, Bir80a, Cut63, HY81, How62, Klo72, Sec62, BBAS69, Bir61c, BV70b, BH71, FGP10a, FGP10b, You97, BB73]. **Applying** [GV96]. **apportionment** [Bir76d]. **approach** [CHS03, Hoo75, Müh81]. **approaching** [Roq11]. **Approximate** [PSM18, CP11, Ric11]. **Approximation** [BdBSW66, Gar65, AIN12, BdB65, Bir67d, BF67, Bir69e, Bir72d, BCG74, Gar65]. **April** [BBAS69, BL59, BW61, BBL62, BV70b]. **arbitrarily** [LIW18]. **arbitrary** [BS82, DDCY17]. **area** [ST84]. **arithmetic** [Bir37a, Bir42a]. **arithmetical** [Ric11]. **Arthur** [Wei87]. **articles** [Bir37f]. **assistance** [Ano77, GG75]. **Association** [Tar77]. **Astrophysics** [Tau63c]. **Asymptotic** [BK66b, CG00]. **attainment** [SPH15]. **Automata** [Tau63b, BL74]. **automorfismos** [Bir46d]. **automorphisms** [Bir33c, Bir34l, BH36]. **automorphismus** [Bir34m]. **Autonomous** [BK76a, BF88, QQ23]. **Averaged** [Bir64a]. **Averages** [BD04]. **axially** [BW54a]. **axiom** [BB84]. **Axiomatic** [Bir33a]. **axiomatics** [Sch11].

**B** [Ano75, Bir80a]. **balanced** [CLL01, CLY06]. **Banach** [Bir34a, Bir34i, Bir35f, KL19, PMW19]. **Bartee** [Klo72]. **Based**

[DC18, DAE13, Jet82, NTNBBV14]. **Bases** [RGZ18]. **Basic** [Bog85, Lor92a]. **basis** [AB12, CL15, JWH16, LY13, MRYS20, WZD09]. **behavior** [BK66b]. **behaviour** [LIW18]. **Bellman** [Bir64b]. **Bemerkungen** [Bir46a]. **between** [PMW19].  
**Bibliographies** [BG75a]. **bicentennial** [Tar77]. **bicubic** [Bir69e]. **billiards** [KdC05]. **Binary** [BE63]. **Birkhoff** [Ano77, Ant63, Bau98, BF88, BBC88, BNBV10, BTL99, CIL07, Cut63, De 03, GG75, Gum66, How62, Klo72, Kop75, Lan63, LY13, Mac98, NBSV08, NBHYV09, NBBKV10, NBNTGV11, Reu86, RR21, Sec62, Var98, Wei87, YNBV11,  $\Lambda$ CDM14, AIN12, AW83, AWD86, AW89, AB12, ACD18, AK01, Amr94, Ano75, AR12, AR15, AGK<sup>+</sup>21, AV22, AS69, Aus67, BB05, Bar67, BD04, BGT95, BdPK07, BBK22, BS82, BC06, Bew71, Bir37f, Bir46b, Bir82a, Bog71, Bog85, BN90, Boj93, BDS00, Bon88, Bör89, Boy70, Bra60, BS93, BHLV03, Bru82, BCGVS11, CG00, Car04, CSV80, CC03, CLLX11, CJMT74, CLL01, CLY06, CRUV00, CQCZ19, CHS03, CP11, CP13, CS80, CdFM08, CdFM09, CM10, CN17, CLN14, CL15, DDCY17, DKWL20, DD16a, DD19, DAE13, DD16b]. **Birkhoff** [DDH18, DU16, DKPU18, DC18, DLR82, Dyn84, FSZ85, FGP10a, FGP10b, Fer74, Fer15, Fin08, Gai17, GS10, GM90, GM92, GKM04, Gla69, Gol01, GV96, GZ08, Hig91, Hor78, Jet82, Jet87, Jia95, JWH16, JDM60, kJ16, Kal93, KdC05, KLR19, KL19, KJ06, KL88, LS93, LL07, LCXL11, Let76, LLL86, Lia90, Lim07, LIW18, LZ71, Lor82, Lor92a, Lor92b, Lor92c, Lut79, Maj84, MNS74, MS92, Mar06, Mar92, MRYS20, MOSZ02, MT18, Mew67, MCS11, Mil17, MZ17, Müh81, NBNTG12, NB16, NTNBBV14, Nik96, Nis79, PSG16, PSM18, PMW19, RMKPZ22, RGZ18, RS81, Roq11, RPB23, RO87, RES01, Rou04, Rut98, SA85, SPH15, SSZ83, Sax96, Sch69, SW10, Sch11, ST84, SP68, She08, Shi22, SW08, Sin86, SW65, Sun91, SUB12, Tin86, TTT99]. **Birkhoff** [VIT21, Ven02, WZD09, XLD23, YZLH17, You97, Zeg05, Zhu97, Zun02, dS00, dDS00, dBS01, dBD05]. **Birkhoff-type** [DAE13, Sin86]. **Birkhoffian** [KWM13, McE93, QQ23, SZ15, SL15, SL16, WHWW21]. **Bivariate** [CG00, GM92, GM90]. **blended** [BCG74]. **bodies** [SW65]. **Book** [Ano77, Anoxx, Ant63, Bir64b, Bir69c, Bir73e, Bir74b, Bir77c, Bir78a, Bir80a, Bir80b, Bir83a, Bir83b, Bir97, Cut63, G.68, GG75, Gum66, How62, Kop75, Sec62, Wei87]. **books** [Bir80d]. **Boolean** [BW39, BB46]. **bornées** [Bir50c]. **Boundaries** [BH63, Bir52a]. **boundary** [Bir48d, Bir49b, Bir64c, Bir73b, CN17, RPB23, Sho53]. **bounded** [Bir50c, PSG16, PSM18]. **bounds** [BdB64]. **Branch** [BS84]. **Brief** [BM65a]. **Brauldi** [BBC88]. **bubble** [BMH58]. **bubbles** [Bir56a, BC57]. **Bunch** [Bir80a].  
**C** [Ant63, Bir80a, Klo72, Lan63, MB73]. **Calculation** [BGZ54, Bir61a, BK54d]. **Calculations** [BF71]. **calculator** [Bir80a]. **calculi** [Gai17]. **Calculus** [BH35a, BH35c, BH35d, BH35b, MS92]. **California** [BS84]. **called** [TTT99]. **Cambridge** [Ano77, Bir83a, Bir83b, GG75, Bir80c]. **can** [Bir70]. **Carathéodory** [Bir91]. **cardinal** [AB12]. **Carolina** [BV70b]. **carrier** [MS92]. **Case** [Ven02]. **Caso** [Ven02]. **Cauchy** [Bir64d, BV65, BBK73]. **cavitation** [Bir73c]. **Cavities** [BMPT48, BZ57, Bir58a, BS64]. **cavity** [BPS50, BPS52, BGZ54]. **central** [QQ23]. **Century** [MHR80, Bir78a]. **Cernuschi** [Bir62b]. **Changes** [Fer74]. **channels** [Bir64c]. **character** [Lor82]. **Characterization** [AS69, BW39]. **Characterizations** [MZ17]. **Chebyshev** [MCS11]. **Circuit** [VIT21]. **City** [BBAS69, BH71]. **class**

[AB12, CN17, DAE13, Jet82, WHWW21].  
**Classical** [Bir73e, GG75, Kop75, Ano77, Rou04].  
**Classification** [Bir54a]. **coalgebraic** [Gol01]. **Codes** [KLR19]. **coefficient** [Car04, CC03, KdC05]. **coefficients** [BBL84]. **Cohen** [Ano75]. **Collected** [Tau61a, Tau61b, Tau63a, Tau62, Tau63b, Tau63c]. **Collection** [MHR80]. **collision** [BE63]. **collocation** [CN17, JWH16]. **color** [Bau98]. **combination** [Bir33b, Bir34j, Bir35i, Bir36l].  
**combinations** [Bir75g]. **Combinatorial** [Bir34c, Bir35d]. **combined** [DD16b].  
**combining** [NB16]. **commemorating** [Tar77]. **Comments** [BBC88].  
**commutative** [Bir35h]. **commutator** [De 03]. **Compact** [DKWL20, Fer74, MRYS20, Bir80a].  
**Comparison** [BD76, BN90]. **Compatible** [BM74]. **Compensated** [YZLH17].  
**Competition** [Bir65a]. **Complete** [DD16b].  
**Completely** [LS93]. **completeness** [Bir37d, BR60, MS92]. **Complex** [Sch69, Bir34i, McE93]. **complex-valued** [Bir34i]. **Composite** [Dyn84, RGZ18].  
**composition** [Bir35e]. **compressions** [Lim07]. **computation** [She08].  
**Computational** [Bir80a]. **Computations** [BL62b, BL62a, BF70, Bir90]. **compute** [BGT95]. **Computer** [Bir75g, Bir80c, ST84].  
**Computers** [Anoxx, BH71, Bir72c, Tau63b, Bir80a, Bir80d]. **Computing** [BBL84, Fer15, MHR80, Nas90, Bir71e, Bir88a, CRUV00].  
**concerning** [JDM60]. **Condition** [RR21].  
**conditioned** [JWH16]. **Conditions** [BH35c, BH35d, CG00]. **conduction** [DR56]. **cones** [Bir67c, Lim07]. **Conference** [BS84, Sch81, Ano75]. **Confocal** [BM62].  
**Conformal** [Lia90, BYZ51, BYZ53, KL88, Lie18].  
**Conical** [BW54a]. **Conics** [BM62].  
**conjecture** [Mar92]. **conjunto** [Bir46b].  
**connected** [BYZ51]. **conservation** [Bir64a].  
**constant** [SW10]. **Continuation** [Sou46].  
**Continuity** [DLR82, CP13]. **Continuous** [Bir36a, Bir36b, Bir35b, Bir35a, Bir36d, GKM04, Tau62]. **continuum** [BV70b].  
**Contraction** [LL07, Car04, CC03]. **Control** [Hig91]. **convection** [BGL90].  
**convection-diffusion** [BGL90].  
**Convergence** [Fra50, Bir36i, Bir37c, Bir37e, RS81].  
**Conversation** [AW83]. **convex** [MOSZ02].  
**Convexity** [BB85a, BB84, BB85b]. **corps** [SW65]. **Corrections** [Bir74c].  
**cosmological** [SW10]. **cosmology** [Sin86].  
**counting** [CdFM09]. **Coxeter** [MOSZ02].  
**creation** [Sin86]. **creative** [Sch11]. **Critical** [RES01]. **Criticality** [BV57b, BV58, BV59a, Bir59, Bir61d, Bir63c].  
**Critique** [Ven02]. **Criticism** [Ven02].  
**Cubic** [BdBSW66]. **Cumulative** [Amr94].  
**Current** [Bir74a, Bir72b, Bir73a, Bir74c, Bir74d, Bir76b, Bir76c, BL90b]. **curved** [BGZ54]. **curves** [Mar92]. **cyclic** [BK69, BK70, BK71, BK75, BK76b].  
**cylinders** [BL80].

**D** [Bir46b, Bir82a, BK62]. **D.** [MB73]. **dam** [Ric11]. **dans** [SW65]. **data** [ACD18, BP71, Bir73b, DD16b, DDH18, Jet82]. **David** [Zun02]. **DDE** [YNBV11]. **Decomposition** [VIT21, CQCZ19, DU16, DKPU18, GKM04, GZ08]. **Dedekind** [Sch11]. **Defect** [Hig91].  
**defined** [PMW19]. **Definite** [You53].  
**definition** [Bir35g, Roq11]. **definitions** [Bir33a]. **Deflection** [YZLH17, BW54b].  
**Deflection-Compensated** [YZLH17].  
**degree** [Fer15, Mil17]. **degrees** [Kal93, Reu86]. **delay** [BK66b, BK66c].  
**demigroups** [Bir63b]. **density** [Bir53b].  
**dependence** [Bir35c, Bir35k]. **Dependent** [Bir38b]. **derivation** [CC03]. **derivative** [Fin08]. **Derivatives** [BP67]. **Design** [BF71, Tau63b]. **determinants** [BdPK07, GM92]. **determination** [Lie18].  
**developments** [Bir48d, Bir49b, Bir80c].

développées [MB73]. **d’Histoire** [Bir79e]. **diagonalization** [Nik96]. **diameter** [CdFM08]. **Dies** [Sax96]. **Dieudonné** [Bir79e]. **Difference** [BGL90, Bir64b, Bir65c, QQ23, You54]. **differences** [Ric11]. **Differential** [Ant63, Bir48c, Bir54a, BR62, BR69, BR78, BR89, Fra50, G.68, GZ08, Lan63, PR55, BF88, Bir36e, BM58, BK65, BK66b, BK66c, BK67, BSV68, BK69, BK70, BK71, BK75, BK76a, Lut79, Ric11, You50, Bir64b]. **differential-delay** [BK66b]. **diffusion** [Bir75a, BGL90]. **dimension** [DD16a, DD19]. **Dimensional** [Bir48c, SL15, AW89, Bir46c, FGP10a, KL19, PMW19, SW65, SUB12]. **dimensions** [DDCY17, Lia90, SW65]. **directed** [Bir62b]. **Direction** [BV57a, BV59b, BVY62]. **DIRK** [NB16]. **discontinuity** [Bir48e]. **discontinuous** [WHWW21]. **discovery** [Sch11]. **Discretization** [BV65, NBNTG12, FGP10a, NBNTGV11, NTNBV14]. **discretizations** [BG74]. **discrets** [Bir35o]. **dissection** [BG73]. **dissipation** [SL16]. **dissipation-preserving** [SL16]. **distributed** [dS00, dBS01, dB05]. **distributions** [BG79]. **Distributive** [BB46, Bir36c, BK47]. **DM** [Bir80b]. **Do** [BF59, Bir70]. **domains** [BYZ51]. **Donald** [G.68]. **Dongarra** [Bir80a]. **double** [AW89]. **double-well** [AW89]. **doubling** [BMT03]. **Doubly** [BS82, CS80, GS10, LS93, BBC88, Bru82, CQCZ19, DU16, DKPU18, JDM60, Nis79]. **Draftsman** [BG68]. **Drei** [Bir46a]. **dually** [Bir62b]. **Dulmage** [Nis79]. **Durham** [BV70b]. **dynamics** [Bir83d, Bir84c, Bir84b, Bir90].

**Early** [Bir65a]. **ecuacion** [Bir46b]. **Ed** [GG75]. **Edited** [Ano77, Gum66, Sec62]. **editor** [G.68]. **eds** [Anoxx, Wei87]. **Education** [Bir72c]. **Effective** [BYZ51]. **effects** [BPS50, BPS52]. **eigenvalue** [BF70]. **Einstein** [BS93, Hor78]. **Element** [BF71, BF74]. **elementary** [Nis79]. **elements** [Bir40b, BM74]. **Eleventh** [Sec62]. **Elimination** [BG73, GV96]. **Elliptic** [Bir71c, Bir71d, Bir81b, BS84, BL84, PR55, Sch81, Bir60a, Bir69a, BF70, Bir72a, Bir83f, BL90a, BL90b, You50, You54, Wei87]. **ELLPACK** [BL90a]. **empty** [MS92]. **Energy** [SL16]. **Energy/dissipation** [SL16]. **Energy/dissipation-preserving** [SL16]. **Engineering** [Sou46]. **Engineers** [Bir48c]. **Entangled** [RGZ18]. **Entries** [CS80]. **entstehung** [Bir80b]. **Entstelung** [Bir80e]. **enumeration** [Bir36c]. **equal** [Reu86]. **Equation** [Bir69f, SUB12, BK54b, Bir69b]. **Equational** [Sun91, MS92]. **Equations** [Bir48c, Bir54a, BR62, Bir66, BR69, Bir71d, BD76, BR78, BR89, Fra50, LL07, PR55, BF88, Bir36e, BM58, Bir60a, BK65, BK66b, BK66c, BL66, BK66a, BK67, BG68, BSV68, BAS69, Bir69a, BK69, BAS70, BK70, BK71, Bir75a, BK75, BGL90, Bör89, Hor78, KJ06, LIW18, Lut79, Ric11, SL16, You50, You54, G.68, Ant63, Lan63, Bir64b]. **Equi** [RGZ18]. **Equi-Entangled** [RGZ18]. **equiconvergence** [SSZ83]. **equilibrium** [BK66a]. **equivalence** [Bir34h]. **Ergodic** [Aus67, Tau61b, AB39, AB40, Bew71, Bir39a, Bir39b, CHS03, Zun02]. **Erlanger** [BB88]. **Ermittelung** [Lie18]. **Errata** [BV59a]. **Error** [BdB64, Fin08]. **Errors** [BV65, BP67]. **espace** [SW65]. **espaces** [Bir35o]. **Essays** [MHR80]. **Essentially** [BK65]. **establishment** [BK84]. **Évariste** [Sar37]. **evolution** [Hoo75]. **Exact** [BAS70]. **exactness** [Mil17]. **exercices** [MB73]. **expansion** [CRUV00]. **expansions** [AIN12, BR60]. **Experimental** [RES01]. **explicit** [NTNBV14]. **Explosives** [BMP748]. **Exponentially** [MNS74]. **extended** [Bir37a]. **Extension** [Bew71, BdPK07]. **Extensions** [Bir50a],

Bir57, Gla69, RR21, Bir34i, Bir34k, Bir34u]. **extreme** [Shi22].

**F.** [Bir62b]. **Face** [CdFM09]. **Faces** [CM10]. **Fact** [Bir50b, Bir55b, Bir60b, Bir63a]. **factorization** [KJ06]. **families** [BB94, BK76a]. **family** [Shi22]. **fast** [LCXL11]. **Fe** [Sch81]. **Felix** [BB88]. **few** [BG74]. **few-point** [BG74]. **Field** [Boy70, BV70b, Hor78]. **fields** [BB49]. **fiftieth** [BM92]. **fifty** [Tar77]. **fifty-nineth** [Tar77]. **Final** [Bir75a]. **Finite** [BF71, BF74, Bir34c, BM74, Ric11, FGP10a]. **Finite-dimensional** [FGP10a]. **finitely** [BTL99]. **Finsler** [Rut98]. **first** [BK66b, Fin08, KdC05]. **first-order** [BK66b]. **Fitted** [MNS74]. **fixed** [Bar67]. **Flow** [BC49, BPS50, BPS52, Bir73d]. **Flows** [BD04, Bir61a, Rou04, BW54a, BGZ54, Bir64c, Bir78b]. **Fluid** [BC49, Bir90, Bir73d, Bir78b, Bir83d, Bir84c, Bir84b]. **fluids** [Bir87, Bir88b]. **fonctions** [Bir50c]. **fondamentales** [MB70]. **force** [BB49]. **force-fields** [BB49]. **forced** [KWM13]. **Form** [Rou04, AWD86, AW89, CRUV00, FGP10a, FGP10b, Kal93, Nik96, She08]. **Formation** [Bir53a]. **forms** [BGT95]. **Formula** [LL07, CC03, Lim07, MCS11]. **Formulacion** [Bir46b]. **Formulae** [BN90]. **Formulas** [Jet87, Dyn84, Jet82]. **formulation** [McE93]. **FORTRAN** [KRYG82]. **foundations** [Bir41, Bir44a]. **four** [NBSV08]. **four-stage** [NBSV08]. **four-step** [NBSV08]. **Fourier** [BK52, Bir54b, Bir67b]. **fractional** [JWH16]. **Frank** [Gum66]. **Franz** [Anox]. **Free** [Bir36d, Bir61a, BH63, Bir64c, Bir36a, Bir48d, Bir49b, Bir52a]. **freedom** [Kal93]. **Freeman** [Bog85]. **French** [Bir50c, SW65]. **function** [Bir80a, DDH18, Fin08]. **functional** [BK84, CHS03]. **functionals** [Bir34k]. **Functionen** [Lie18]. **Functions** [BY50, Gar65, Tau61b, AB12, Bir34a, Bir34i, Bir35f, Bir50c, Bir60a, Let76, Lie18, MCS11].

**Further** [DKPU18]. **Future** [Bir77b, Bir75g].

**G** [Ant63, Bir80a, Cut63, GG75, Gum66, How62, Lan63]. **G.** [Bir46b, Bir79d, JDM60, Lan63]. **G.-C** [Lan63]. **Galerkin** [WHWW21]. **Galois** [Bir37b, Sar37]. **Games** [Tau63c]. **Garret** [Bog71]. **Garrett** [Ano77, Bog85, Kop75, Mew67, Wei87, AW83, Ano75, Bir37f, Klo72, Mac98, RO87, Sax96, Var98, You97]. **Gauss** [Jet87]. **Gaussian** [BP71, Dyn84, Jet82]. **General** [AB39, AB40, Gar65, Bir36i, Bir37e, Bir39a, Bir40b, Bir79d]. **Généralisation** [SW65]. **generalization** [BK73, LLL86, SW65]. **Generalized** [BH35a, BH35b, Bir37c, Bir42a, MNS74, Mil17, SUB12, Bau98, Bon88, BS93, Hor78, KL88, McE93, MCS11]. **generated** [BTL99]. **geometries** [Bir34c]. **geometric** [RMKPZ22]. **Geometrie** [BB87]. **geometries** [Bir35d]. **Geometry** [Bir79f, Gum66, Tau62, Bir41, Bir44a, BK75, Bir82b, FGK<sup>+</sup>63]. **George** [Bir82a, Zun02]. **German** [Bir46a, BB73, Lie18]. **Gerstenberg** [Bir80b]. **GITA** [CRUV00]. **Goldstein** [Gum66]. **Goldstine** [Bir78a]. **Gordon** [LIW18]. **grands** [MB71]. **Graph** [KLR19, Tin86]. **Graphs** [DKWL20]. **Grätzer** [Bir79d]. **gravitation** [Bir82a]. **Gravitational** [Boy70]. **gravity** [Zeg05]. **great** [Bir75g]. **Greedy** [DC18]. **Greenspan** [G.68]. **Group** [Bir37b, Tau61b, Bir36g, Bir43a, GKM04, Reu86]. **Groupes** [Bir49a]. **groupoids** [Bir34d, Bir34e]. **groups** [Bir33c, Bir33d, Bir34l, Bir34m, Bir34r, Bir35b, Bir35a, Bir35n, Bir36a, Bir36b, Bir36d, Bir36f, Bir36g, Bir36j, Bir36k, BH36, Bir37j, Bir38a, Bir39a, Bir42b, Bir45, Bir50a, MOSZ02]. **growth** [BMH58]. **Grundlagen** [BB87]. **grupos** [Bir46d]. **guaranteed** [CLY06]. **guide** [Bir80a]. **Gustavson** [AWD86, AW89, CRUV00, Kal93, Nik96].

**H** [Bir69c, Bir78a, Bog85]. **H.** [Bir80e].  
**Hadamard** [Bir75h, RGZ18]. **Hamiltonian** [BB05, BC06, FGP10a, FGP10b, McE93].  
**Hamiltonians** [AW89]. **hard** [Lie18].  
**Harmonic** [BY50, BAS69, Lie18].  
**Harmonischer** [Lie18]. **Harvard** [Ano77, GG75, Bir83e, Bir89, Bir91].  
**Hausdorff** [Bir34d, Bir34e]. **heat** [BK54b, DR56]. **Heims** [Bir83a, Bir83b].  
**Heisenberg** [KJ06]. **Held** [BBAS69, BL59, BH71, BW61, BV70b, BS84, Sch81].  
**Helmholtz** [Bir62a]. **Henrici** [Bir80a, Bir80d]. **Herbert** [Bir80b].  
**Herman** [Bir78a]. **Hermite** [SP68, AB12, ACD18, AS69, BP67, BSV68, BNBV10, CG00, CSV80, CJMT74, DD16b, DDH18, Dyn84, Fer74, Fin08, GM90, GM92, Hig91, LIW18, MNS74, Müh81, NBSV08, NBHYV09, NBBKV10, NBNTGV11, NBNTG12, NB16, NTNBV14, SSZ83, Sch69, YNBV11]. **Heterogeneous** [BL70]. **High** [VIT21, AIN12, CN17, LIW18]. **high-order** [LIW18]. **High-Speed** [VIT21]. **Higher** [BF74, Lia90]. **Higher-Order** [BF74].  
**Hilbert** [Maj84, AR12, BB87, Lim07].  
**Hildesheim** [Bir80b]. **Historical** [Hoo75].  
**History** [Bir65a, Bir78a, MHR80, Nas90, Ven02].  
**hold** [Bir75g]. **Hölder** [Bir34u]. **homenaje** [Bir62b]. **homogène** [BK54a].  
**homogeneous** [Bir54b, BK62, BK58].  
**horizons** [SA85]. **Hotel** [BW61, BBL62].  
**House** [Bir76d, Bir97]. **HP** [Bir80a]. **HSP** [Amr94]. **HSP-Theorem** [Amr94]. **hulls** [MOSZ02]. **hybrid** [Gai17, MRYS20].  
**Hydrodynamic** [BBL62, BL62b, BBL64, BD75a, BD75b].  
**Hydrodynamical** [Bir48a, BL62a].  
**Hydrodynamics** [Bir50b, Bir55b, Bir60b, Bir63a, Bir16, Tau63c]. **Hydrodynamique** [Bir55a]. **Hyperbolic** [BD04, Rou04].  
**Hypersonic** [BEM66].  
**I.** [Ano75]. **Ideals** [Bir34f, Bir34g, Bir34n, Bir35j]. **identities** [Bir34o]. **II** [Gum66, AIN12, Bir71b, Bir35j, Bir36d, BPS52, BK54d, Bir65d, BS84, Bir84b, FGP10b, MB71, Tau61b, dBS01, Wei87]. **III** [Bir48c, Tau63a]. **Impact** [Bir72c]. **Implicit** [BV57a, BV59b, BVY62]. **inclusion** [Bir36m, Bir37i]. **Independence** [KLR19].  
**Induced** [Bir52a, Bir53b, Bir54c].  
**Industrial** [BBAS69, BV70b, BH71, Bir80a].  
**inequality** [BK73]. **Infinite** [SL15, KL19, PMW19].  
**Infinite-Dimensional** [SL15]. **initial** [DAE13]. **initial-value** [DAE13].  
**Instability** [Bir54e, Bir56b, Bir54d, BBL62, Bir62a, BBL64]. **Integrability** [Rou04].  
**integral** [Bir46b, BK54c, BK54d].  
**integrand** [CHS03]. **Integration** [Bir34a, Bir35f, Bir36e, Bir37g, Bir35h, Bir37h, Bir83c]. **integrators** [KWM13, LIW18, WHWW21]. **Integro** [BK66c]. **Integro-differential** [BK66c].  
**interpolants** [BCG74, BCGVS11].  
**Interpolation** [AS69, BG60, BP67, Bir73b, Boj93, CJMT74, DLR82, GV96, Hig91, LZ71, Lor92c, MNS74, RES01, Sch69, SP68, AB12, ACD18, BBG73, BdB64, BdB65, BSV68, Bir69e, Bir71f, Bir72d, Bir79a, BDS00, CG00, CSV80, CLLX11, CL15, DAE13, DD16b, FSZ85, Fin08, GM90, GM92, Jia95, JWH16, LCXL11, Lor82, Lor92a, Lor92b, MT18, Müh81, RS81, SSZ83, WZD09, XLD23, Zhu97, dS00, dDS00, dBS01, dB05].  
**interval** [Bir62b]. **Introduction** [Bir75b, Bir75c, Bir75d, Bir75e, Bir75f].  
**invariant** [Bir67c]. **invariants** [Lut79].  
**inverse** [CRUV00]. **involving** [Fin08, Ric11]. **irregular** [MRYS20].  
**Irrisolto** [Ven02]. **Island** [Gum66].  
**isomorphic** [Bir36f, Bir36g]. **isomorphism** [Tin86]. **Isoperimetric** [BH35c, BH35d].  
**isotrope** [BK54a]. **Isotropic** [BG79].  
**Italian** [Ven02]. **Iterative** [Fra50, HY81],

KRYG82, Var62, You50, You54]. **ITPACK** [BL90a, KRYG82]. **IV** [Tau62]. **ix** [Bir80b, Ric11].

**J** [BV59a, Bir69c, Bir80a, MB73]. **J.** [Bir79e]. **J.-C** [MB73]. **Jacobson** [Bog85]. **James** [AR12, AR15, AGK<sup>+</sup>21, AV22, BBK22, CP11, CP13, KL19, MZ17, PSG16, PSM18, PMW19, SPH15]. **James-orthogonality** [CP13]. **January** [BS84, Mac98, Var98]. **Jentzsch** [Bir57]. **Jets** [BS64, BZ57, Bir58a]. **John** [Bir80a, G.68, Tau61a, Tau61b, Tau63a, Tau62, Tau63b, Tau63c, Zun02, Bir83a, Bir83b, Bir97]. **Johnson** [Nis79]. **Jordan** [Bir34u, BW49]. **July** [Sch81]. **June** [Sch81].

**Kac** [Gum66]. **kaverny** [BS64]. **Kergin** [Lor92b]. **kind** [Jia95]. **Kinematics** [BK62, BK58]. **Kinetics** [Bir66]. **Klein** [BB88, LIW18]. **knots** [Boj93]. **Konformer** [Lie18]. **Kutta** [Hig91, NTNBUV14].

**L** [Anoxx, Bir69c, Bir38b]. **LA-1862** [Bir56b]. **Laboratories** [Gar65]. **Lagrange** [CN17]. **Lagrange-collocation** [CN17]. **Lagrangian** [BL62b]. **Laminar** [Bir54e]. **Lane** [Bog71, Bog85, Mew67]. **Large** [KRYG82, Bir36f]. **Lattice** [Abb70, Bir40a, Bir42b, Bir43b, Bir45, Bir48b, BP56, Bir61b, Bir63b, Bir67a, BHC<sup>+</sup>70, Bir79b, Bir79c, Bir79d, Bir34b, Bir34n, Bir35j, Bir35k, Bir46g, Bir52c, Bir58b, BB85b, Bir84a, Bir81a]. **Lattice-ordered** [Bir42b, Bir45, BP56, Bir63b]. **Lattices** [Bir34h, Bir38c, Bir61c, Bir70, Bir95, BB84, BB85a, BB94, Bir35c, Bir36c, Bir40b, BK47, BF48, Sch11]. **laws** [Bir64a]. **Leaders** [Bir77d]. **Leibniz** [CIL07]. **lemma** [De 03]. **Lewis** [BF88, BB05]. **Lewis-Type** [BB05]. **Liapunov** [BK73]. **libration** [She08]. **Lie** [Bau98, Bir35n, Bir36f, Bir36g, Bir36h, Bir37j, Bir45, BW49, Bir50a]. **like** [BB46].

**limit** [Bir35g]. **limitation** [Bir67b]. **linéaire** [MB73]. **lineal** [Bir46e]. **Linear** [Bir34i, Bir36h, BK67, Bir67c, KRYG82, You53, Bir34k, Bir35c, Bir35k, Bir35m, Bir36b, Bir36f, Bir36g, Bir46a, Bir46e, BD56, BK65, Bir65b, BK66b, BK69, BK70, BK71, BG74, BK75, Bir80a, BL90b, PSG16, PSM18, QQ23, Bir35b]. **linearen** [Bir46a]. **linearization** [XLD23]. **Lined** [BMPT48]. **LINPACK** [Bir80a]. **Liouville** [BR60]. **Load** [CLL01, CLY06]. **Local** [Bir67d]. **locally** [BCG74]. **logarithm** [Reu86]. **Logic** [Amr94, Bir50b, Bir55b, Bir60b, Ven02, BvN36, Bir63a, Tau61a]. **Logica** [Ven02]. **logico** [Hoo75]. **logico-algebraic** [Hoo75]. **Logics** [Sun91, Gai17]. **London** [Bir64b, Bir83a, Bir83b]. **long** [LIW18]. **long-time** [LIW18]. **Lorentzian** [Lim07]. **Lorenz** [Lim07]. **Lovelock** [Zeg05]. **Lowell** [Bir65a]. **Lubos** [Bir74b]. **Lubrication** [BH63]. **Lusztig** [LY13].

**M** [Bir77c, Gum66]. **M.I.T** [Bir83a, Bir83b]. **Mac** [Bog71, Bog85, Mew67]. **Macrae** [Bir97]. **magnet** [KJ06]. **magnetic** [Hor78]. **manifolds** [ACD18]. **many** [MS92]. **many-sorted** [MS92]. **mapping** [BYZ53]. **mappings** [Lie18]. **Maps** [LS93, BGT95, ST84]. **March** [BH71]. **masonry** [Ric11]. **Mass** [Ano77, Bir83a, Bir83b, GG75, Bir52a, Bir53b, BL80, BBL84]. **Matematika** [Bir77a]. **materials** [BL62a]. **Math** [Bir74c]. **Mathematical** [BBAS69, BL59, BW61, BBL62, Bir65a, BV70b, BH71, Bir72c, Bir73c, Cor96, Gum66, Sec62, Bir60c, Bir85, Bir86, Bir88b, Tar77]. **mathematician** [Bir77c]. **Mathematics** [Bir71a, Bir71b, Bir48c, BL59, BW61, BBL62, Bir69d, Bir75g, Bir76e, Bir77b, Bir77d, Bir80a, BS84, Bir89, Cut63, How62, Sax96, Sec62, BBAS69, Bir61c, BV70b, BH71, Bir76a, Tar77, You97, GG75]. **Mathématiques** [Bir79e]. **Matrices**

[AK01, BV57b, BV58, BV59a, CS80, RGZ18, You53, BS82, Bir37j, Bir75h, BG79, BBC88, Bru82, DDCY17, DD16a, DD19, DU16, DKPU18, JDM60, Nis79, Shi22]. **Matrix** [LS93, Var62, CC03]. **Matter** [BL62b]. **maximal** [BBK22, Mil17]. **Maximally** [KLR19]. **maximum** [BW54b]. **Maxwell** [Hor78, SL16]. **McCoy** [RR21]. **mean** [Bir39b]. **meaning** [Bir37d]. **Means** [Bir50c]. **mechanical** [BC06]. **Mechanics** [BS84, Gum66, Tau61a, BvN36, FGK<sup>+</sup>63, Hoo75]. **mediante** [Bir46b]. **meeting** [Tar77]. **Mehrtens** [Bir80b, Bir80e]. **memoriam** [Var98]. **Mendelsohn** [Nis79]. **meromorphic** [Lut79]. **Merzbach** [Ano77, GG75, Kop75]. **meshes** [MRYS20]. **Meteorology** [Tau63c]. **Method** [RES01, Sun91, You53, DAE13, RPB23]. **Methods** [BV57a, BF71, BF74, BD76, HY81, KRYG82, MNS74, NBNTG12, Sou46, SL15, BYZ53, BV59b, BVY62, Bir65c, Bir80a, BGL90, CN17, FGP10a, FGP10b, JWH16, MT18, NBNTGV11, NB16, NTNBBV14, SL16, XLD23, You50, You54]. **Metric** [Bir41, Bir44a, Bir33a, Bir35m, Lim07, BK62]. **metrics** [KL88]. **Mezard** [MB73]. **Michell** [BK54c, BK54d]. **Michigan** [Gar65]. **Mills** [BS93]. **Milne** [Boy70]. **Minimal** [Fer74]. **Minimax** [BH35a, BH35b]. **minimization** [Bir80a]. **Mises** [Gum66, Bir83e, FGK<sup>+</sup>63]. **Mixing** [Bir54e]. **mobile** [SW65]. **Möbius** [dDS00]. **modèle** [BK54a]. **modeling** [BE63]. **Models** [BL62b, Bir88b]. **Modern** [BM41, BM53, BM65a, BM65b, BB70a, BB70b, Bir76h, Bir76g, BM77, BL97, Cor96, Klo72, Bir71e, Bir74b, BM92]. **modular** [Bir35e]. **modules** [AR12]. **Molecular** [BL62b]. **Moler** [Bir80a]. **moments** [Bir67d]. **monogenic** [Bir34k]. **monoids** [Bra60]. **monomial** [CL15]. **monopole** [Hor78]. **monotone** [Bir76d]. **Monterey** [BS84]. **Monthly** [Bir74c]. **Moore** [Bir36i, Bir37e]. **Moore-Smith** [Bir36i]. **Morris** [Anoxx]. **motion** [SW65]. **Motors** [Gar65]. **mouvement** [SW65]. **Moyennes** [Bir50c]. **multi** [SL16]. **multi-symplectic** [SL16]. **multigroup** [Bir75a]. **multiple** [GZ08]. **multiplicative** [Bir62c, Bir65d]. **Multistep** [MNS74, NB16]. **Multistochastic** [CLN14]. **Multivariate** [AB12, BCG74, Lor92c, Bir79a, CLLX11, CL15, LCXL11, WZD09]. **mutual** [AGK<sup>+</sup>21]. **N** [Bir69c]. **Nash** [Bir80a]. **Nathan** [Bog85]. **nation** [Tar77]. **Natural** [BH35c, BH35d]. **Naval** [BS84]. **Negative** [BV57b]. **nested** [BG73]. **network** [BD56]. **networks** [Bir63d, BK66a]. **Neumann** [Bir83a, Bir83b, Bew71, Bir58b, CLL01, CLY06, CQCZ19, CLN14, DKWL20, DU16, DKPU18, DC18, LLL86, Tau61a, Tau61b, Tau63a, Tau62, Tau63b, Tau63c, Ven02, YZLH17, Zun02, Bir97]. **Neutral** [Bir40b]. **neutron** [Bir63c]. **Newman** [BB94]. **Newton** [WZD09]. **Newtonian** [BB49]. **nilpotent** [Bir36h]. **Nilson** [Bir69c]. **nineth** [Tar77]. **Ninth** [BL59]. **NM** [Sch81]. **no** [Bir36f, Bir36g, BV59a]. **Nodes** [Sch69]. **Noether** [SZ15]. **Non** [Bir35h, BD56, BV57b, BF88, dS00]. **Non-commutative** [Bir35h]. **Non-linear** [BD56]. **Non-Negative** [BV57b]. **non-uniformly** [dS00]. **Nonlinear** [BV70a, Bir83c, G.68, Bir63d, KJ06, LIW18]. **Nonnegative** [BV58, BV59a]. **nonuniformly** [dBS01, dBD05]. **Norbert** [Bir83a, Bir83b]. **norm** [SPH15]. **Normal** [Rou04, AWD86, AW89, BGT95, CRUV00, CHS03, FGP10a, FGP10b, Kal93, Nik96, She08]. **normalization** [BHLV03]. **Norman** [Bir97]. **normed** [Bir34p]. **North** [BV70b]. **Note** [Aus67, Bir34j, BB49, BK54b, BW54b, Bir54d, Bir65b, Bir76f, Bir36j, Bir36k]. **Notes** [BBC88, Bru82, DU16, DKPU18]. **November** [Mac98, Var98]. **Novy** [Bir74b]. **Nuclear** [Cut63, How62, Bir60c, BW61].

- Number** [BH71, KLR19]. **numbers** [Bir75h, Reu86]. **Numerical** [BY50, BYZ53, Bir66, BL66, Bir69a, BV70b, BV70a, Bir71d, Bir73d, BD75a, BD75b, BD76, Bir78a, Bir83d, Bir84c, Bir84b, BL84, PR55, SL15, Tau63b, BBK22, Bir80a, Bir85, Bir86, Bör89, CP11, DAE13, DR56, Sho53, G.68].
- Obrechkoff** [YNBV11, NBSV08]. **observaciones** [Bir46e]. **observations** [Bir46e]. **obstacles** [BGZ54]. **ocean** [Bir85, Bir86]. **October** [BV70a]. **ODE** [BNBV10, NBSV08, NBHYV09, NBBKV10]. **ODEs** [NB16]. **Office** [BS84]. **Offprints** [Bir37f]. **One** [NBHYV09, AW89, BSV68, NBBKV10]. **one-dimensional** [AW89]. **One-step** [NBHYV09, NBBKV10]. **only** [Fin08]. **Opening** [Ano75]. **operation** [BK47]. **Operational** [Bir34o]. **Operator** [MZ17, SPH15]. **Operators** [AR15, AGK<sup>+</sup>21, Tau63a, Bir37h, Bir43a, Bir65b, DD16b, GS10, KL19, PSG16, PSM18, PMW19, Sho53, Tau61b]. **Optimal** [BP71, BG74]. **Orbit** [BL59, BK76b]. **orbits** [BC06, KdC05]. **Order** [Bir37i, BF74, Bir33c, Bir34m, BH36, BK66b, BK67, BK69, BK75, Bir88a, CN17, LIW18, NBSV08, NBHYV09, NBBKV10, NTNBV14, YNBV11]. **Ordered** [Bir82b, Bir36m, Bir42b, Bir45, BP56, Bir63b]. **Ordinary** [BR62, BR69, BR78, BR89, Lan63, Ant63]. **Origins** [Bir74b]. **Orthogonality** [Bir34p, Bir35m, MZ17, AR12, AR15, AGK<sup>+</sup>21, AV22, BBK22, CP11, CP13, KL19, PSG16, PSM18, PMW19, SPH15]. **oscillation** [AIN12]. **oscillator** [AWD86]. **Other** [Tau62, ACD18].
- P** [Cut63, How62, Bir74b]. **Pa** [BV70a]. **Package** [KRYG82]. **Pál** [dBD05]. **Pál-type** [dBD05]. **Panstochastic** [AK01]. **Paper** [Gla69, Bir34j, BBC88]. **Papers** [Gum66, RO87, FGK<sup>+</sup>63, Tar77]. **Parabolic** [PR55]. **Paradoxes** [Bir48a]. **Part** [FGP10a, FGP10b]. **Partial** [AS69, Bir48c, Bir54a, BH63, Bir65c, Fra50, BM58, BSV68, You50, You54]. **Partially** [Bir36m]. **partie** [MB73]. **past** [BGZ54]. **Patterns** [BC49]. **PDEs** [BB05, FGP10a, FGP10b]. **Peano** [BB84]. **perfectly** [Bir33a]. **period** [BMT03]. **Periodic** [Tau61b, BC06, BP71, Boj93, KdC05]. **perturbed** [BDS00]. **Peter** [Bir80a, Bir80d]. **Ph** [Gum66]. **phase** [Bir78b]. **phenomena** [Maj84]. **Philadelphia** [BV70a, Bir80a]. **Philosophy** [Bir79f]. **physical** [Bir88b, Ric11]. **Physics** [Sou46, BV70b]. **Piecewise** [BdB65, BdBSW66, BSV68, Bir69e, Bir72d]. **Pierce** [Mar92]. **pipes** [Bir64a]. **plane** [BGZ54, BC57]. **PM** [DKWL20]. **PM-Compact** [DKWL20]. **pocket** [Bir80a]. **Poincaré** [Bar67, Bau98, BC06, Bir79f, BTL99, CIL07, De 03, LY13, RR21, TTT99, Reu86, Roq11]. **Point** [RES01, Bar67, BG74]. **points** [Bir34o, She08, Shi22, dBD05]. **Poised** [AS69]. **polygons** [Bir69e, Bir72d]. **Polynomial** [BCGVS11, BdB65, Bir71f, CG00, MRYS20, Sho53]. **Polynomials** [BdB66, BF67, Lor82, Zhu97]. **Polytope** [KLR19, RGZ18, CdFM08, CdFM09, CM10, Mar06, RMKPZ22]. **polytopes** [ACDM14, Fer15, kJ16]. **Popper** [Ven02]. **poset** [BB85b]. **Positive** [BK70, BK71, LS93, You53, BK65, Bir65b, BK66c, BK67, BK69, BK75, BK76b, CC03]. **Positivity** [Bir61d]. **possibly** [MS92]. **Postulates** [Bir35n, BB46]. **Potential** [Bir61a]. **potentials** [Bir54c]. **pour** [SW65]. **power** [DD19]. **Pp** [GG75, Bir77c, Bir80a, Bir80b]. **pp.** [Anoxx, Bir64b, Bir80a, G.68]. **Prager** [Gum66]. **Prague** [Bir74b]. **Preconditioning** [MT18]. **Preface** [BG75b]. **Presentations** [Lan63].

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- Scribners** [Bir77c]. **second** [BK67].
- second-order** [BK67]. **seen** [Bir80c].
- Selected** [FGK<sup>+</sup>63, RO87, Gum66]. **self** [Sin86]. **self-creation** [Sin86]. **Semi** [Rou04, Bir39a, Bir62c, Bir65d].
- Semi-classical** [Rou04]. **semi-groups** [Bir39a]. **semi-primitive** [Bir62c, Bir65d].
- semigroup** [Bew71]. **semigroups** [Bir64d].
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- Similitude** [Bir50b, Bir55b, Bir60b, Bir63a].
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- Splines** [Bir69c, Fer74, Boj93]. **splitting** [FGP10a, FGP10b]. **sponsored** [BS84].
- Stability** [Bir56a, NBNTG12, Roq11, KdC05, NBNTGV11, NTNBBV14, She08].
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- Statistically** [BBK73]. **Statistics** [Gum66].

**step** [NBSV08, NBHYV09, NBBKV10, NB16, NTNBV14, YNBV11]. **Steve** [Bir83a, Bir83b]. **Stewart** [Bir80a]. **stiff** [NB16]. **Stirling** [Reu86]. **Stochastic** [CS80, LS93, BS82, BBC88, Bru82, CQCZ19, DU16, DKPU18, GS10, JDM60, Nis79]. **Stokes** [Maj84]. **Storico** [Ven02]. **Streamlines** [Bir61a, Bir48e]. **streets** [Bir52b, Bir53a]. **stresses** [Ric11]. **Strong** [NBNTGV11, NBNTG12, NTNBV14, AR15, AGK<sup>+</sup>21, AV22]. **Strong-Stability-Preserving** [NBNTG12, NBNTGV11, NTNBV14]. **Structure** [SL15, Bir35l, BK76b, BMT03, WHWW21]. **Structure-Preserving** [SL15, WHWW21]. **structured** [MRYS20]. **Structures** [Cor96, RMKPZ22, MB70]. **Strui** [BS64]. **Studies** [BV70a]. **Study** [Bir50b, Bir55b, Bir60b, RES01, Bir63a]. **Sturm** [BR60]. **style** [Gai17]. **subalgebras** [Bir33b, Bir34j]. **Subdirect** [Bir44b]. **subgroup** [Bir34v]. **Subgroups** [Bir34r]. **subpolytopes** [Mar06]. **summation** [AWD86]. **Support** [Fer74]. **Surface** [BG60, Bir90]. **Survey** [BM41, BM53, BM65a, BM65b, BM77, BL97, BM92]. **Switch** [DC18]. **Switches** [VIT21, YZLH17, CLL01, CLY06]. **Symbolic** [She08, CRUV00]. **Symmetric** [LIW18, BW54a, Reu86]. **symmetries** [KL88, LY13]. **Symmetry** [PMW19]. **Symplectic** [QQ23, BGT95, SL16]. **Symposia** [Cut63, How62, BV70a]. **Symposium** [BL59, BW61, BBL62, Gar65, Sec62, BBAS69, BH71, BV70b]. **synthesis** [Bir54b]. **Synthetic** [BL62a]. **system** [BS93, Hor78]. **Systems** [KRYG82, SL15, You53, BC06, Bir35n, BB46, BK65, BK69, BK70, BK71, BK75, BK76a, BK76b, KWM13, QQ23, SZ15, WHWW21]. **Szego** [Gum66]. **Taub** [KL88, Lia90]. **Taylor** [NBHYV09, NBBKV10, Bir54d, Bir54e, Bir56b, Bir62a, BNBV10]. **technique** [DAE13]. **techniques** [Bir73d]. **telegraph** [BL66]. **Tensors** [CLN14, CQCZ19]. **Teoriya** [Bir84a, Bir81a]. **term** [Fin08]. **terms** [SL16]. **ternary** [BK47]. **Terracini** [Bir62b]. **test** [BG79]. **tetradic** [SA85]. **th** [CSV80, RS81]. **Their** [Bir69c, Bir38c, Bir95, LIW18]. **Theorem** [AK01, Aus67, BB05, CS80, CLN14, LS93, Reu86, Bau98, BdPK07, BS82, Bir33d, Bir34u, Bir39a, Bir39b, Bir57, Bon88, BS93, CIL07, CQCZ19, CHS03, DDCY17, DD16a, DD19, Gol01, Hor78, LLL86, MOSZ02, Nis79, SA85, SW10, Shi22, Sin86, SZ15, TTT99, Zeg05, Amr94]. **théorèmes** [MB71]. **Theorems** [Rut98, AB39, AB40, Bar67, Bew71, KL88, Lia90, Tin86, Zun02]. **Theoretical** [Sou46]. **Théorie** [Bir49c]. **Theorist** [Sax96]. **Theory** [Abb70, Bir37b, Bir40a, Bir48b, BK54d, Bir61b, Bir67a, Bir69c, BHC<sup>+</sup>70, BH71, Bir79b, Bir79c, Tau61a, Tau61b, Tau63b, BBAS69, Bir84a, Bir34n, Bir35j, Bir35k, Bir46c, Bir48d, Bir49b, Bir52b, Bir52c, Bir58b, Bir59, Bir60c, BW61, Bir63c, Bir81a, Bir82a, McE93, SA85, Tau63c, BL59, Bir79d, Cut63, How62]. **thermal** [BK66a]. **Third** [BK69, BK75]. **third-order** [BK75]. **Thirteenth** [BBL62]. **Thomas** [Klo72]. **three** [BNBV10, DR56, SW65, Bir46a, Bir46e]. **three-dimensional** [SW65]. **three-stage** [BNBV10]. **Time** [BM62, NBNTG12, LIW18, NTNBV14, SZ15, WHWW21, NBNTGV11]. **Time-Discretization** [NBNTG12, NTNBV14, NBNTGV11]. **Tome** [MB70, MB71]. **tools** [BL90a]. **Topics** [Tau62]. **topological** [Bir36j, Bir36k, Bir76f]. **topologies** [Bir35i, Bir36l]. **Topology** [RO87, Bir34s, Bir34t, Bir36i, Bir37e, Bir62b]. **Torretti** [Bir79f]. **trains** [BK52]. **trajectories** [Roq11]. **Transfinite**

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**transformation** [Bir34s, Bir34t, BYZ51].  
**transformation-sets** [Bir34s, Bir34t].  
**transformations** [BK54c, Bir67c].  
**Transition** [BEM66]. **transitive** [Bir33d].  
**transitivity** [BK62]. **Transport**  
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Bir69b, BAS70]. **Treatise** [Sou46].  
**Treatments** [Fra50]. **trellis** [Bir49c].  
**Trends** [Abb70, BHC<sup>+</sup>70, Bir74a, Bir72b,  
Bir73a, Bir74c, Bir74d, Bir76b, Bir76c]. **Tres**  
[Bir46e]. **triangles** [BBG73, Bir73b].  
**triangular** [BM74, She08]. **triangulated**  
[Bir72d]. **tribute** [Tar77]. **Tricubic** [Bir71f].  
**tridiagonal** [CM10, kJ16]. **trigonometric**  
[BF67, Jia95]. **trois** [SW65]. **Tschebyscheff**  
[Sho53]. **Turbulence**  
[BEM66, Bir54b, BK54a, BK62, BK58].  
**Twentieth** [MHR80]. **Two**  
[BB94, Bir75h, SUB12, Bir37f, Bir46c,  
BSV68, Bir78b, DR56]. **Two-dimensional**  
[SUB12, Bir46c]. **two-phase** [Bir78b]. **Type**  
[BB05, BN90, SW08, BF88, BK66c, BK67,  
BTL99, DAE13, Dyn84, Jet82, Jia95, Rut98,  
Sin86, Tin86, You50, You54, dBD05].
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**Undergraduate** [Bir72c]. **Uniformly**  
[Bir62c, Bir65d, BK76b, dS00]. **unions**  
[Bir44b]. **Uniqueness** [Jet87, Fin08].  
**Unistochastic** [RGZ18]. **unitary**  
[DDCY17, DD16a, DD19]. **unity**  
[BDS00, CSV80, FSZ85, RS81, SSZ83, dS00,  
dDS00, dBS01]. **univariate**  
[BCG74, XLD23]. **Universal**  
[Bir46f, BL74, Bir44b, Bir76f, Bir82c, RPB23].  
**Universe** [Boy70]. **University**  
[Ano77, BL59, GG75]. **Unsolved** [Ven02].  
**USA** [BBL62]. **Use** [Sho53]. **User** [Bir80a].  
**Using** [Hig91, JWH16, MRYS20]. **Uta**  
[Ano77, Kop75].
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[CN17, DAE13, RPB23, Sho53]. **valued**  
[Bir34i]. **values**  
[Bir34a, Bir35f, Fin08, GZ08].  
**Vandermonde** [GM92]. **Variable**  
[YNBV11, Bir53b, NB16]. **variable-order**  
[YNBV11]. **Variable-step** [YNBV11].  
**variables** [BSV68, DR56, Zhu97].  
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[BD04, KWM13, Bir63d, CHS03, WHWW21].  
**Variations** [BH35a, BH35c, BH35d, BH35b].  
**variety** [Gol01]. **Vector**  
[CS80, BS82, Bir34p]. **verbandsteorie**  
[Bir80b]. **Verbandstheorie** [Bir80e].  
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[Fer15]. **VI** [Tau63c]. **via**  
[Lor92b, MT18, RES01]. **viscous** [Bir64c].  
**vol** [Cut63, How62, Hoo75]. **Vol.** [FGK<sup>+</sup>63].  
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Tau63a, Tau62, Tau63b, Tau63c]. **vortex**  
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[BZ57, Bir58a, BEM66, BS64]. **Wall**  
[BPS50, BPS52]. **Walsh** [Bir69c, SSZ83].  
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[Bir87, Bir88b]. **weighted** [Mil17]. **Weil**  
[MB73]. **Well**  
[Bir64d, BV65, JWH16, AW89, BBK73].  
**Well-conditioned** [JWH16]. **Well-Set**  
[BV65, Bir64d, BBK73]. **Wiener**  
[Bir83a, Bir83b]. **Wigner**  
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[Bir80a, G.68]. **William** [Bir65a]. **Witt**  
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RR21, TTT99]. **Works** [Tau61a, Tau61b,  
Tau63a, Tau62, Tau63b, Tau63c].
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[GG75]. **xvi** [Bir64b].
- Yang** [BS93]. **years** [Bir83e]. **York**  
[Anoxx, BBAS69, BL59, BBL62, Bir64b,  
BH71, Bir77c, Bir80a, Bir97, G.68]. **Yorker**  
[BW61, BBL62]. **Young**

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