

# A Bibliography of Publications of Yousef Saad

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## Abstract

This bibliography records publications of Yousef Saad.

## Title word cross-reference

*3D* [GHS10].  $\exp(-\tau A)b$  [SSS10].  $f(A)b$  [CAS11]. *ILU* [LSC03]. *ILUS* [CS97c].  $k$  [CrFS09]. *LU* [CS97c, LSS03b, Saa94d].  $\text{tr}(f(A))$  [CS18, UCS17].

'02 [AGPS03].

1982 [KR83]. 1988 [BTS<sup>+</sup>89]. 1993 [BCEP94].

20th [Sv00].

5 [WS93].

Abaffy [Saa92h]. ABS [Saa92h]. Abstract

[SS85c]. accelerated [LS13b]. accelerating [KKPS18]. Acceleration [BRZS18, KS87, Saa84b, BCRZS22, CS99, rFS09, KS92, ZSTC06a]. acceptors [SKBS88]. acoustic [EGMS20]. Adapted [FSUS20]. ADI [MS92, MS93]. advances [GGL94]. algebra [DS91a]. Algebraic [LS17, GHS10, LSS03a, SS02b, SST04, SSC04, XLS16]. Algorithm [DS91b, LXV<sup>+</sup>16, Saa85a, SYEG00, ZS07, ESS86, GS87, GS88b, GS88a, GS89b, Saa74c, Saa80a, Saa82a, Saa86c, SS86c, SL86, SL88, SW93, Saa93a, SW96b, Saa91a]. algorithmes [Saa74b]. Algorithms [AGPS03, ASSS11, BDG<sup>+</sup>10, CS92, CS85a, CS86, CTJ<sup>+</sup>95, CTSZ07, CZC<sup>+</sup>09, LXES19, SS85g, Saa92a, Saa92h, Saa94a, Saa94b, Saa06, BGSS14, BS94, CS93, CS96, FRSY96, GS94, KS87, Saa90b, Saa94e, US19, VS14]. Alternating [JSS87, SS85c]. amplitude [WGSC18]. Analysis [BSS09, BSS10, Saa92b, Saa94b, Saa97, Saa16, BJR<sup>+</sup>09, Saa94e, Saa00b]. analytics

[KMB<sup>+</sup>18]. **Anderson** [BRZS18, BCRZS22]. **Anderson-type** [BCRZS22]. **angle** [LSS86, SL86, SL88]. **Application** [CS12, CTWS94]. **Applications** [AGPS03, ASSS11, BKS08, BDG<sup>+</sup>10, FSUS20, Saa06, SrFS08, BJR<sup>+</sup>09, CSS02, CCS10, CS98a, CS85b, Saa83a, Saa90b, Saa90d, SAD<sup>+</sup>00, SS11, SSC04]. **approach** [GS90a]. **approaches** [KKPS18]. **Approximate** [BS02b, BS02c, CS94, CS97d, CS98b, Saa03a, BS02a, CrFS09, CS97f, USS17a]. **Approximating** [LSY16]. **Approximation** [CS09b, FSUS20, GS92a, BSS09, CCE<sup>+</sup>18, CS97a, CS08, EGMS20, GS90b, GS90a, GS92b, GSS03, ITS07, Saa84a, Saa86b, Saa86e, SS11, UMS17]. **Approximations** [CAS11, Saa92b, GHS10, US19]. **Architectures** [IS85, IS86b, IS86a, SS86b, GS89d, SS89b]. **arising** [Saa84a, Saa86b, Saa86e, SMSW00]. **ARMS** [SS02b, SST04]. **Arnoldi** [BSS10, DS91b, Saa80c, SSW98]. **array** [SSS85]. **Assignment** [DS91b, Saa88d]. **Associated** [DS91b]. **Atom** [TZA<sup>+</sup>06]. **Augmented** [Saa97, CS97b]. **Automated** [KXS18]. **automatic** [GS94, Saa92a].

**Banded** [SS85e, SS87]. **Based** [BS05b, HS06, KS07, SZ99b, SrFS08, JSS07, LXS16, MOKS12, SW93, SW96b]. **Basic** [PSWF93, Saa90a]. **basis** [CTS93, CTS94]. **Benchmark** [SW88b, SW88a, SW90]. **Beresford** [Saa83c]. **between** [BS02c]. **Beyond** [KXS18]. **BILUM** [SZ99a]. **BILUTM** [SZ99b]. **biorthogonalization** [Saa80a, Saa82a]. **bisection** [CrFS09]. **Block** [LS03, LSS03b, MS93, SS80, SZ99a, SZ99b, Saa03a, ZS08, CS97d, GS87, GS88b, GS88a, GS89b, Saa80b, SZ01, Saa23, MS92]. **Block-ADI** [MS93, MS92]. **block-partitioned** [CS97d]. **Boeing** [SW89]. **Book** [Saa83c, Saa95]. **bordered** [CS85b]. **Bounds** [Saa94b, Saa94e]. **brief** [Saa20]. **Brownian** [ACSS12]. **Bulk** [TZA<sup>+</sup>06].

**calculation** [ZSTC06b]. **Calculations** [ÖBSC03, SCS10, AJT<sup>+</sup>07, CTS93, CTS94, JKSC99, SSC<sup>+</sup>96, ZSTC06a]. **Carolina** [BCEP94]. **Centenary** [BCEP94]. **century** [Sv00]. **CFD** [CSW00, SST04]. **Chain** [PSS92, Saa91c]. **chains** [BGB<sup>+</sup>10, RGSB08]. **charge** [BSTC05]. **charging** [RGSB08]. **Chebyshev** [ESS86, Saa84b, ZSTC06a, ZSTC06b, ZS07, ZCS14]. **Chebyshev-filtered** [ZSTC06a, ZSTC06b, ZCS14]. **classes** [rFS09]. **clusters** [CTJ<sup>+</sup>95, JTD<sup>+</sup>94]. **CM** [PSWF93, WS93]. **CM-5** [WS93, PSWF93]. **Coarse** [MS07a]. **Coarse-Grid** [MS07a]. **Coarsening** [MS07b, OKLS15, US19]. **codes** [GS81, GS83, JKSC99, UMS17]. **Communication** [SS85a, Saa85a, SS85d, Saa86c, SS86b, SM95, SS89a, SS89b]. **Community** [CS12]. **Compensation** [MOKS12]. **Complement** [DKXS18, LS05b, SS99a, GHS10, KLS16, LXS16, Saa07, XKL<sup>+</sup>22, ZXS21]. **complement-based** [LXS16]. **Complements** [BS05a]. **Complex** [PS85, PS87, Saa83a, Saa84a, Saa86b, Saa86e, Saa87c]. **complexities** [GS89d]. **Complexity** [ISS84, ISS86, Saa85a, Saa86c]. **Component** [JSS07]. **Component-based** [JSS07]. **Computation** [BS05a, BKS08, Saa74a, XLS18, LLCS02, dLGG<sup>+</sup>05]. **Computational** [PS20, SM95, Fit86]. **Computations** [BTS<sup>+</sup>89, FWPS92, PSWF93, SW88a, Saa94a, SW88b, SW90, Saa90a]. **Computers** [FWPS92, SS02a, AS88, AS89]. **Computing** [BSTC05, CAS11, Saa92e, Saa95, SSS10, TS11, XS16, ACSS12, CS18, PS07, Saa80c, TS12]. **Concurrent** [Saa95]. **condition** [Saa84a, Saa86b, Saa86e]. **Conference** [BCEP94, Fit86, KR83]. **Confined** [ÖBSC03]. **Conjugate** [SS85g,

SS85f, SS86a, SYEG00, Saa06, Saa85c].

**Conquer** [LS13a]. **consistent** [ZSTC06a, ZSTC06b]. **Constructed** [BS05b]. **construction** [CrFS09]. **continuation** [CS85b]. **contour** [KKPS18, LXSdH20]. **control** [DS91a, Saa90d]. **Convergence** [BS94, Saa80b]. **convergent** [BS89]. **convex** [BSS09]. **Cornelius** [BCEP94]. **correcting** [UMS17]. **Correction** [LS17, PS07, ZXS21]. **corrections** [LXS16, XLS16]. **counts** [DPS16, NPS16]. **coupled** [KS92]. **coupling** [dlGGS<sup>+</sup>05]. **Crout** [LSC03, LS05a]. **cubic** [SKBS88]. **Cucheb** [AKS17]. **cyclic** [GS87, GS88b, GS88a, GS89b].

**dans** [Saa74b]. **Data**

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**Definite** [SS80, VSS14]. **Deflated** [CS97b, SYEG00]. **deflation** [Saa88d].

**Dense** [CS12, ISS84, ISS86, KMB<sup>+</sup>18].

**Dense-Linear-System** [ISS86]. **Densities** [XLS18, BSTC05, LSY16, USS17a]. **Density** [BKS08, BSK<sup>+</sup>03, RGSB08, SS11, dlGGS<sup>+</sup>05]. **density-functional** [RGSB08].

**dependent** [BSK<sup>+</sup>03, RGSB08, dlGGS<sup>+</sup>05].

**Design**

[Saa87b, SW95, SW96a, Saa87a, SMSW00].

**Detection** [CS12]. **Development** [Saa22].

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**diatomic** [CTWS94]. **dictionary** [USS17b].

**Dielectric** [ÖBSC03]. **difference** [CTS93, CTS94, CTWS94, JTD<sup>+</sup>94, SSS85].

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**Direction** [SS85c, JSS87]. **disjoint**

[Saa83d]. **Distributed** [MS94, Saa92e, Saa94a, SM95, SS98a, SS99a, SS99c, Saa07].

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Saa94a, SSZ98, SZ99b, TS11, CS93, CS96,

LXS16, PS07, Saa92a]. **Domain-Based**

[SZ99b]. **Domain-Decomposition-Type**

[TS11]. **Dominance** [Saa05]. **d'origine**

[Saa74b]. **DQGMRES** [SW93, SW96b].

**dual** [Saa92d, Saa94d]. **Dynamic** [SSW98].

**dynamics** [ACSS12, CJWS96, JTD<sup>+</sup>94].

**E.** [Saa92h]. **Editorial** [Saa00a, BGSS14].

**Effective** [CS09a]. **Efficient**

[AJT<sup>+</sup>07, DPS16, GS90b, GS92b, GS92a, NPS16, dlGGS<sup>+</sup>05, LSS86].

**eigendecomposition** [SS14].

**eigenelements** [Saa80c]. **Eigenfaces**

[SrFS08]. **Eigenproblems**

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NPS16, Saa82b, Saa83e, Saa89b, Saa92g,

SSC<sup>+</sup>96, Saa23, SSF95, SS98b, WSS98, ZS08].

**Eigenvalues** [BS05a, Saa74a, LXES19].

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[JKSC99, SCS10, AJT<sup>+</sup>07, CTS93, CTS94,

CKV<sup>+</sup>03, CTSZ07, CZC<sup>+</sup>09, SSC<sup>+</sup>96].

**element** [KSS03, KSSG04]. **Elimination**

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[SS99b, SZ01]. **Environments**

[Saa87b, Saa92e, CS99, Saa87a]. **equation**

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SL88, ZCS14]. **Equations** [CSS85, GS92a, MS92, MS93, BCRZS22, BS87, BS90, BS91, CSS87, ESS86, GS87, GS88b, GS88a, GS89b, GS89c, GS89a, GS90b, GS90a, GS92b, GS81, GS83, PS07, SS81, SSS85, Saa90c, Saa20].

**Eric** [Saa95]. **Error**

[Saa94b, CS18, Saa94e, UMS17]. **estimate** [CS18]. **Estimation**

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**estimator** [BKS07]. **Études** [Saa74b].

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**Fermi** [SS11]. **few** [Saa94b, Saa94e]. **field**

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[GGL94]. **Impact** [IS85, IS86b, IS86a].

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[ACSS12, BSS09, BS87, BS89, BS90, BS94, CS99, CCSY98, CS97b, CS14, ESS86, GS92b, GS92a, Saa81, Saa84c, Saa89a, Saa90b, Saa90d, Saa91b, Saa92b, Saa92e, Saa92f, Saa93b, Saa97, Saa98, Saa11a, Saa22, ZS08].

**Laguerre** [SSS10]. **Lanczos**[BCEP94, AKS17, BGB<sup>+</sup>10, BSTC05, BKS08, CrFS09, CS09a, CS18, rFS12, LXV<sup>+</sup>16, RGSB08, Saa80a, Saa80b, Saa82a, Saa87d, Saa94b, Saa94e, UCS17].**Lanczos-Type** [Saa94b, Saa94e]. **Large**[BKS08, BTS<sup>+</sup>89, DS91b, IS86a, LS06, ÖBSC03, PS89, Saa82b, Saa85b, Saa11b, SSF93, ZS07, DS91a, LSY16, Saa74a, Saa80a, Saa80c, Saa81, Saa82a, Saa83b, Saa83e, Saa89b, Saa90c, Saa92g, SSC<sup>+</sup>96, SAD<sup>+</sup>00, SSF95, UMS17, WSS98, ZS08].**Latent** [SrFS08, VS14]. **learned** [USS17b].**Least** [CAS11, LS06, Saa83a, Saa87c, XS16, Saa84a, Saa86b, Saa86e]. **Least-Squares** [LS06, XS16]. **level** [SSZ98, SZ99c, SZ01].**Library**[LXES19, SW94, SW95, SW96a, SKL<sup>+</sup>97].**Like** [DS91b, SS85g]. **Linear**[DKXS18, ITS07, ISS84, ISS86, MS92, MS93, MS94, SS85g, SS85e, SS87, SS98a, SZ99a, SS99a, SS99c, SS02a, XS17, AS88, DS91a, ESS86, GS81, GS83, GSS03, JSS07, KMB<sup>+</sup>18, LS13b, OKS10, Saa81, Saa83d, Saa84c, SSS85, SS86c, Saa87c, Saa88d, Saa88a, Saa88b, Saa88c, SSZ98, SZ99c, SS99b, Sv00, SZ01, Saa01, SS02b, Saa03b, Saa07, Saa20, SMSW00, ZXS20, ZXS21].**liquid** [LLCS02]. **localized** [CJWS96]. **Low**[CS09b, DKXS18, LS13a, LS17, UMS17, CS08, LXS16, XLS16, XKL<sup>+</sup>22, ZXS20, ZXS21]. **Low-Rank** [LS13a, LS17, LXS16, XLS16, XKL<sup>+</sup>22, ZXS20, ZXS21]. **LR**[Saa74b]. **LU** [CCS10]. **Lyapunov** [Saa90c].**Magnetism** [TZA<sup>+</sup>06]. **March**[GGL94, KR83]. **Markov** [PSS92, Saa91c].**Massively** [FWPS92]. **Material** [SÖS<sup>+</sup>00].**Materials** [PS20, SCS10]. **mathematical**[Fit86, Fit86]. **Matrices** [CS92, CS94, LSC03, LS13a, ÖBSC03, PS87, Saa85b, SW89, Saa96, SZ99b, Saa16, BSS09, CS93, CS96, CS97d, CS97e, LS05a, LSY16, PS85, Saa74a, Saa80c, Saa84a, Saa86b, Saa86e, Saa92c, Saa94c, UMS17, XLS16, XKL<sup>+</sup>22].

**Matrix** [AGPS03, ASSS11, AEKS90, BDG<sup>+</sup>10, FSUS20, FWPS92, IS86a, OKLS15, PSWF93, SW88a, Saa92b, Saa94a, SW94, TS11, BJR<sup>+</sup>09, BKS07, BGSS14, CCE<sup>+</sup>18, CS98a, Saa83a, Saa83b, SW88b, Saa90a, SW95, SW96a, SAD<sup>+</sup>00, TS12, USS17a, US19, VSS14, dlGGS<sup>+</sup>05, KR83]. **Memory** [Saa87b, SM95, Saa87a]. **Message** [Saa87b, Saa87a, WS93]. **Method** [SS80, Saa87d, CTS93, CTS94, CTWS94, CS18, EGMS20, JTD<sup>+</sup>94, KSS03, KSSG04, LSS86, Saa80c, Saa85c, Saa23, SCS12, TS12, ZS08, ZCS14]. **Methods** [BTS<sup>+</sup>89, CCSY98, CS14, DS91b, GS92a, LS17, PSS92, SS81, SS85c, SS85e, SS85f, SS86a, Saa87b, SS87, Saa91b, Saa92e, Saa93b, Saa97, SCS10, Saa11a, Saa11b, Saa22, SSW98, SÖS<sup>+</sup>00, TS11, ACSS12, BSS09, BS87, BS89, BS90, BS91, CSS02, CS85b, rFS09, Fit86, GS90b, GS92b, GGL94, JSS87, JSS07, KS92, KCS09, KCS11, Saa80a, Saa80b, Saa81, Saa82a, Saa82b, Saa83d, Saa83b, Saa83e, Saa84c, Saa87a, Saa88d, Saa89a, Saa90b, Saa90d, Saa91c, Saa92g, Saa92f, Saa98, Saa01, Saa03b, Saa20, SS98b]. **minimal** [SS86c, SW93, SW96b]. **minimum** [Saa00b]. **Minneapolis** [BTS<sup>+</sup>89, GGL94]. **Minnesota** [BTS<sup>+</sup>89, GGL94]. **MIQR** [LS06]. **Modeling** [PSS92, Fit86]. **models** [Saa91c]. **modern** [CSS02, SSC04]. **Modification** [MOKS12]. **Modified** [CS99, Saa84a, Saa86b]. **module** [SW94, SW95, SW96a]. **Molecular** [CJWS96, BGB<sup>+</sup>10, JTD<sup>+</sup>94]. **molecular-dynamics** [JTD<sup>+</sup>94]. **molecules** [CTWS94]. **moment** [Saa84a, Saa86b]. **Multi** [Saa96, Saa92c, SSZ98, SZ99c, SZ01]. **Multi-Elimination** [Saa96, Saa92c]. **multi-level** [SSZ98, SZ99c, SZ01]. **Multicolor** [ZXS20, SS99b]. **Multielimination** [SZ99a]. **Multigrid** [CS85a, CS86]. **Multilevel** [BS05b, KXS18, LS06, SZ99a, SZ99b, Saa05, SrFS08, LSS03a, OKLS15, SS02b, SST04, SSC04, US19, XLS16, XKL<sup>+</sup>22]. **multiple** [KMB<sup>+</sup>18]. **Multiprocessor** [CS85a, CSS85, CS86, ISS84, ISS86, CSS87]. **Multiprocessors** [SS85c, Saa85a, JSS87, SS81, Saa86c]. **multisecant** [rFS09]. **Multistage** [HS06]. **Multivariate** [CS14].

**N** [Saa83c]. **nanocrystals** [CTSZ07, CZC<sup>+</sup>09]. **Neighborhood** [KS07, KS05b]. **News** [Saa95]. **Newton** [BS94, WSS98]. **NN** [CrFS09]. **Non** [SS99c]. **Non-standard** [SS99c]. **nonlinear** [BCRZS22, BS87, BS89, BS90, BS91, BS94, EGMS20, rFS09, KS92, SGSM15]. **Nonsymmetric** [LSS03b, MS92, MS93, MS07b, Saa84b, SS85g, Saa85b, ESS86, Saa83a, Saa84c, SS86c, Saa87c, Saa88a, Saa88b, Saa88c, Saa89b]. **normal** [BSS09]. **North** [BCEP94]. **null** [ITS07]. **null-space** [ITS07]. **number** [Saa86e]. **numbers** [Saa84a, Saa86b]. **Numerical** [PSS92, Saa83b, Saa87b, Saa89b, Saa90c, Saa92g, SCS10, Saa11b, Saa87a, Saa91c].

**oblique** [Saa80a, Saa82a]. **Observer** [DS91b]. **October** [BTS<sup>+</sup>89]. **ODE** [GS81, GS83]. **Operator** [Saa92b, CS98a]. **OPRA** [KS05a]. **OPRA-faces** [KS05a]. **Optimal** [CS09b, CS08]. **Optimization** [NBS10, NBS12, BSS09, KCS09, KCS11]. **order** [CSW00, CTWS94, JTD<sup>+</sup>94]. **Origin** [Saa22, Saa74c]. **Orthogonal** [CS09b, KS05b, KS07, CS08, Saa83d]. **orthogonalization** [SW93, SW96b]. **other** [Saa80a, Saa82a]. **outer** [Saa91a, Saa93a]. **Overlapping** [CS92, CS93, CS96, LS05b]. **overview** [Saa90d].

**P\_SPARSLIB** [SW94, SW95, SW96a, SKL<sup>+</sup>97]. **Package** [SW88a, SS02a, SW88b, SW90, XKL<sup>+</sup>22].

**papers** [GGL94]. **Parabolic** [GS92a, GS89c, GS89a, GS90b, GS90a, GS92b]. **Parallel** [BDG<sup>+</sup>10, BGSS14, BSK<sup>+</sup>03, CSS02, CS97f, FWPS92, FRSY96, GS90a, HS06, IS85, IS86b, IS86a, SS85e, SS85f, SS86b, SS86a, Saa87b, SS87, SW94, SS99c, Saa01, SS02a, SÖS<sup>+</sup>00, ZSTC06a, AS88, AS89, CS99, GS87, GS88b, GS88a, GS89b, GS89c, GS89a, GS89d, GHS10, LSS03a, LLC02, SS80, Saa87a, SS89b, Saa92c, Saa94c, SW95, SW96a, SKL<sup>+</sup>97, SS99b, SSC04, XKL<sup>+</sup>22, AGPS03, ASSS11]. **parGeMSLR** [XKL<sup>+</sup>22]. **Parlett** [Saa83c]. **pARMS** [LSS03a, SS02a]. **Partial** [CSS85, DS91b, Saa85b, XS16, CSS87, Saa88d]. **partially** [BSTC05]. **Particle** [LLCS02]. **partitioned** [CS97d]. **partitioning** [GS94, LLC02, Saa74a, VSS14]. **Passing** [Saa87b, Saa87a, WS93]. **Pencils** [KR83]. **Performance** [WS93]. **periodic** [AJT<sup>+</sup>07]. **Phase** [WGSC18]. **physical** [CSS02, SSC04]. **Pite** [KR83]. **Pivoting** [BS02b, BS02a, LS05a]. **plane** [JKSC99, Saa83a, Saa84a, Saa86b, Saa86e, Saa87c]. **plane-wave** [JKSC99]. **PMAA** [AGPS03]. **PMAA'10** [ASSS11]. **Point** [LS03, LSS03b]. **pole** [Saa88d]. **Polynomial** [BKS08, CAS11, FSUS20, LXV<sup>+</sup>16, YXS21, GS90b, LXSdH20, Saa85c]. **polynomials** [Saa83d, Saa83a, Saa87c, SSS10]. **portable** [SKL<sup>+</sup>97]. **Positive** [SS80, VSS14]. **posteriori** [CS18]. **potential** [CTS93, CTS94]. **power** [ZXS21]. **Practical** [BTS<sup>+</sup>89, Saa84c, Saa85c, BTS<sup>+</sup>89]. **Preconditioned** [CCSY98, CS14, SS85f, SS86a, Saa91b, Saa93b, Saa98, LS13b, Saa91a, Saa92f, Saa93a]. **Preconditioner** [BS02b, DKXS18, LS05b, LS06, Saa96, SZ99a, SZ99b, XS17, BS02a, CS97c, Saa92c, XLS16, ZXS20, ZXS21]. **Preconditioners** [BS05b, CS94, CS98b, LS13a, LS17, LS03, LSS03b, MS92, MS93, MS94, CS97a, CSW00, CS97e, CS97f, GSS03, LXS16, Saa94c, SZ99c, Saa07]. **Preconditioning** [CS98a, KSS03, KSSG04, OKS10, Saa88a, Saa88b, Saa88c, SAD<sup>+</sup>00, Saa03a, SMSW00, SSF93, YXS21, LXSdH20, OKLS15, SS99b, SZ01, SSF95, VSS14, WSS98, XKL<sup>+</sup>22]. **preconditionings** [Saa85c]. **Predicting** [SÖS<sup>+</sup>00, CTJ<sup>+</sup>95]. **Preserving** [CCSY98, KS07, KS05b]. **Prewhitening** [SS14]. **primitives** [WS93]. **principles** [AJT<sup>+</sup>07]. **probing** [TS12]. **Problem** [NBS10, NBS12, CKV<sup>+</sup>03, Saa23, SCS12, Saa83c]. **Problems** [BSS10, DS91b, rFS12, GGL94, IS85, LS06, LXV<sup>+</sup>16, LS03, LSS03b, MS07b, PS89, Saa84b, Saa11b, Saa16, SSF93, XLS18, CSW00, DS91a, EGMS20, FRSY96, IS86b, KLS16, KKPS18, Saa82b, Saa83a, Saa83b, Saa83e, Saa89b, Saa90d, Saa92g, SSC<sup>+</sup>96, SAD<sup>+</sup>00, SST04, SSF95, WSS98, SZ08]. **Procedure** [rFS12, AKS17]. **Proceedings** [BTS<sup>+</sup>89, KR83, Fit86, BCEP94]. **Process** [BSS10]. **Processing** [FSUS20]. **processors** [SSS85]. **Projection** [BS91, KS07, Saa82b, Saa83e, Saa88d, Saa91c, Saa92h, ITS07, Saa80a, Saa82a]. **Projection-Based** [KS07]. **Projections** [KS07, KS05b]. **Properties** [SS85b, SS88, SÖS<sup>+</sup>00, CTJ<sup>+</sup>95, CTSZ07, CZC<sup>+</sup>09]. **Proxy** [YXS21]. **Proxy-GMRES** [YXS21]. **pseudo** [CTS93, CTS94]. **pseudo-potential** [CTS93, CTS94]. **pseudopotential** [CTWS94, JTD<sup>+</sup>94]. **pseudopotentials** [CKV<sup>+</sup>03]. **PSPARSLIB** [SS98a]. **purpose** [Saa92a].

**QR** [LS06, Saa74b]. **Quadrature** [UCS17]. **quantum** [CJWS96]. **Quasi** [SW93, SW96b]. **Quasi-minimal** [SW93, SW96b].

**Raleigh** [BCEP94]. **Rank** [CS09b, DKXS18, LS13a, LS17, CS08, LXS16, USS17b, UMS17, XLS16, XKL<sup>+</sup>22, ZXS20, ZXS21]. **ranks** [USS17a]. **rates** [Saa80b]. **Ratio** [NBS10, NBS12]. **Rational** [GSS03, KXS18,

SS11, XS16, XS17, EGMS20, GS90a]. **Real** [PS87, CKV<sup>+</sup>03, PS85]. **recognition** [KS05a]. **recursive** [CrFS09, LSS03a, SS02b, SST04, SSC04]. **recycling** [SGSM15]. **Reduction** [CS09a, KS07, NBS10, SrFS08, GS87, GS88b, GS88a, GS89b, KCS09, KCS11]. **Relations** [BS02c]. **reordering** [OKLS15]. **Reorderings** [Saa05]. **reorthogonalized** [BSTC05]. **reservoir** [Fit86]. **Residual** [Saa06, SS86c, SW93, SW96b, Saa00b]. **Residual-type** [Saa06]. **Restart** [LXV<sup>+</sup>16]. **Restarted** [SSW98]. **Restarting** [SSW98, SS98b]. **Restricted** [LS05b]. **retrieval** [WGSC18]. **Review** [Saa83c, Saa92h]. **Reviews** [Saa95]. **Revisiting** [Saa23]. **reweighted** [WGSC18]. **Right** [Saa87d, KMB<sup>+</sup>18]. **Right-Hand** [Saa87d, KMB<sup>+</sup>18]. **Ring** [ISS84, ISS86]. **Robust** [SSF93, SSF95, SZ99c]. **rotation** [Saa23].

**Saddle** [LS03, LSS03b]. **Sampling** [CS14, US19]. **scalable** [KMB<sup>+</sup>18]. **Scale** [BTS<sup>+</sup>89]. **Schur** [BS05a, DKXS18, GHS10, KLS16, LS05b, LXS16, SS99a, Saa07, XKL<sup>+</sup>22, ZXS21, ZS08]. **SchurRAS** [LS05b]. **Science** [PS20]. **Scientific** [Saa95]. **seismic** [Fit86]. **Selection** [MS07a]. **Self** [ZSTC06b, ZSTC06a]. **Self-consistent-field** [ZSTC06b, ZSTC06a]. **Semantic** [SrFS08, VS14]. **semiconductor** [KS87]. **semiconductors** [SKBS88]. **separation** [CCE<sup>+</sup>18]. **Sequence** [BRZS18]. **sets** [SS14]. **Several** [Saa87d]. **Sham** [SCS12, ZCS14]. **Shanks** [BRZS18, BCRZS22]. **Shared** [Saa87b, Saa87a]. **Shift** [PS87, PS85]. **Shifts** [Saa74c]. **shrinkage** [USS17b]. **Si** [JTD<sup>+</sup>94]. **Sides** [Saa87d, KMB<sup>+</sup>18]. **Signal** [FSUS20]. **simulation** [KS87]. **simulations** [ACSS12, JTD<sup>+</sup>94]. **Singular** [CS09a]. **skyline** [CS97c]. **Slicing** [LXES19, SCS12]. **Smallest** [BS05a]. **SMASH** [CCE<sup>+</sup>18]. **SNAP** [ITS07]. **Software** [AEKS90, LXES19, Saa92a]. **solid** [LLCS02]. **solid-liquid** [LLCS02]. **Solution** [DS91a, GS92a, ISS84, IS85, ISS86, IS86b, SSC<sup>+</sup>96, SS98a, SS99c, GS87, GS88b, GS88a, GS89b, GS89c, GS89a, GS90b, GS90a, GS92b, GS81, GS83, ITS07, KSS03, KSSG04, SS81, Saa83d, Saa83b, Saa89b, Saa90c, Saa91c, SW95, SW96a, Sv00, SST04, SGSM15, XKL<sup>+</sup>22]. **solver** [KMB<sup>+</sup>18, LSS03a, SS02b, SSC04]. **Solvers** [SM95, GS89d, GHS10, KKPS18, LS13b, SW94, SKL<sup>+</sup>97, SST04]. **Solving** [AS88, AS89, CSS85, CSS87, LXSdH20, MS92, MS93, PS89, SS80, Saa84b, SS85g, SS85e, SSS85, Saa87d, SS87, SS02a, BS91, CS85b, EGMS20, ESS86, LSS86, Saa80a, Saa81, Saa82a, Saa82b, Saa83a, Saa83e, Saa84c, SS86c, SL86, Saa87c, SL88, ZCS14]. **Some** [GS89d, SW89, Saa92b, BSS09, Saa84c, Saa86e]. **SOR** [MS94]. **Space** [YXS21, CKV<sup>+</sup>03, ITS07]. **SPARK** [SW90]. **Sparse** [AEKS90, CS92, CS94, CS98b, FWPS92, GHS10, GGL94, IS86a, LSC03, LS06, MS92, MS93, MS94, PSWF93, PS89, SW88a, SW89, Saa94a, SW94, SM95, Saa96, SS98a, SZ99a, SZ99b, SS99a, SS99c, SS02a, XS17, AS88, AS89, CS93, CS96, CS97c, GSS03, JSS07, LS05a, Saa82b, Saa83a, Saa83e, SW88b, SW90, Saa90a, Saa92c, Saa94c, SW95, SW96a, SKL<sup>+</sup>97, SSZ98, SZ99c, SAD<sup>+</sup>00, SZ01, Saa01, SS02b, Saa03b, Saa07, SSF95, XLS16, XKL<sup>+</sup>22, ZXS20, ZXS21, ZCS14]. **Sparse-Sparse** [CS98b]. **SPARSKIT** [Saa90a]. **Special** [ASSS11, BJR<sup>+</sup>09, BDG<sup>+</sup>10]. **Spectra** [XS16, CJWS96]. **Spectral** [BS05a, KLS16, SGSM15, XLS18, LSY16, USS17a]. **Spectrum** [DS91b, FSUS20, SCS12]. **Spectrum-Adapted** [FSUS20]. **Spedicato** [Saa92h]. **Squares** [CAS11, LS06, XS16, Saa83a, Saa84a, Saa86b, Saa86e, Saa87c]. **standard** [SS99c]. **Standards** [AEKS90]. **state** [Saa88d]. **states** [BGB<sup>+</sup>10, SKBS88]. **Statistics** [SW89]. **Stiefel** [SS80].



**Stochastic** [UCS17]. **Strategies**

[MS07b, MOKS12, PS87, SS99c, LLC502, PS85, SZ01, SGSM15, SMSW00]. **Strategy** [MS07a]. **structural** [CTJ<sup>+</sup>95]. **Structure** [SCS10, AJT<sup>+</sup>07, CTS93, CTS94, CKV<sup>+</sup>03, JKSC99, SSC<sup>+</sup>96]. **Structured** [GGL94, CCE<sup>+</sup>18, FRSY96]. **Structures** [Saa94a, SM95, Saa03a]. **study** [CS97e].

**Subgraph** [CS12]. **Subspace**

[CCSY98, CS14, Saa91b, Saa92b, Saa92e, Saa93b, Saa97, Saa11a, Saa16, Saa22, ACSS12, BSS09, BS89, CS97b, ESS86, Saa81, Saa84c, Saa89a, Saa90b, Saa90d, Saa92f, Saa98, Saa23, ZSTC06a, ZSTC06b, ZCS14].

**Subspaces** [BKS08, PS07].**Substructuring** [KXS18]. **sum** [CS97a].**Supercomputer** [BTS<sup>+</sup>89, Saa91b, Saa93b].**Supercomputers** [PS89, Saa89a]. **SVD**

[CS08, CS09b]. **Sweden** [KR83]. **Sylvester** [DS91b]. **Sylvester-Like** [DS91b].

**Symmetric** [LS13a, LSS03b, Saa83c, Saa87d, SSF93, ZS07, KLS16, KKPS18, LS05a, Saa83d, Saa23, SSF95, SS98b, VSS14, WSS98, XLS16, ZS08]. **Symmetry**

[CCSY98]. **System**

[ISS84, ISS86, BS87, ITS07, KMB<sup>+</sup>18].

**Systems** [DKXS18, MS92, MS93, MS94, ÖBSC03, SS80, SS85g, SS85e, Saa87d, SS87, SS98a, SZ99a, SS99a, SS99c, SS02a, XS17, AJT<sup>+</sup>07, AS88, AS89, BCRZS22, BS90, BS91, CS85b, CJWS96, ESS86, GSS03, JSS07, KS92, OKS10, Saa80a, Saa81, Saa82a, Saa83d, Saa84c, SS86c, Saa87c, Saa88a, Saa88b, Saa88c, SSZ98, SZ99c, SS99b, Sv00, SZ01, Saa01, SS02b, Saa03b, Saa07, Saa20, SMSW00, VSS14, ZXS20, ZXS21].

**Technique** [KS07]. **Techniques**

[IS86a, Saa84b, SS99a, BCRZS22, CS97b, CS97d, KLS16, KSS03, KSSG04, KS87, Saa74a, Saa88a, Saa88b, Saa88c, SSZ98, SZ99c, SS99b, SAD<sup>+</sup>00, SS98b, WSS98].

**Tensor** [CS97a, CS09b, CS08]. **Tensors**

[CS09b, CS08]. **Texas** [Fit86]. **their**

[GS89d, Saa87c]. **Theoretical**

[Saa94b, Saa94e]. **Theory** [BKS08, BSS09, BS94, BSK<sup>+</sup>03, RGSB08, Saa90b, SS11, dLGG<sup>+</sup>05].

**thermoacoustics** [SGSM15]. **Thick**

[LXV<sup>+</sup>16, SSW98]. **Thick-Restart**

[LXV<sup>+</sup>16]. **three** [LSS86, LXSdH20].

**three-dimensional** [LSS86, LXSdH20].

**Threshold**

[MOKS12, Saa92d, Saa94d, SZ99c].

**Threshold-based** [MOKS12]. **time**

[BSK<sup>+</sup>03, RGSB08, dLGG<sup>+</sup>05].

**time-dependent**

[BSK<sup>+</sup>03, RGSB08, dLGG<sup>+</sup>05]. **tire**

[SMSW00]. **tool** [Saa90a]. **Tools**

[SÖS<sup>+</sup>00, Saa92a]. **Topological**

[SS85b, SS88]. **Trace**

[KCS09, KCS11, NBS10, NBS12].

**Transformations** [BRZS18]. **translations**

[Saa74b]. **trends** [Saa92f]. **triangular**

[AS88, AS89]. **Turbo** [RGSB08]. **Two**

[rFS09, Saa83d]. **Type** [Saa94b, TS11,

BCRZS22, Saa94e, SSZ98, Saa06].

**Unstructured** [MS94]. **unsymmetric**

[Saa80a, Saa80c, Saa81, Saa82a]. **updating**

[VS14]. **use** [Saa84c, Saa85c, Saa87c]. **Using**

[BKS08, CKV<sup>+</sup>03, SS98a, SSC04, BS05a, CS18, JTD<sup>+</sup>94, KS05a, LXSdH20, OKLS15, Saa83d, USS17a, UMS17, VSS14, ZSTC06b].

**values** [VSS14]. **Variations**

[Saa80c, SST04]. **Vectors** [CS09a]. **Velde**

[Saa95]. **Version** [LS05b, SYEG00, LSS03a].

**Versions** [LSC03, SZ99a, LS05a]. **versus**

[CS09a]. **via**

[BSS09, CrFS09, CAS11, CS98b, UCS17,

USS17b, WGSC18, YXS21, ZSTC06a].

**Vibrational** [CJWS96, CZC<sup>+</sup>09]. **volume**

[BJR<sup>+</sup>09].

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