A Complete Bibliography of *ACM Transactions on Mathematical Software*

Nelson H. F. Beebe  
University of Utah  
Department of Mathematics, 110 LCB  
155 S 1400 E RM 233  
Salt Lake City, UT 84112-0090  
USA  
Tel: +1 801 581 5254  
FAX: +1 801 581 4148  
E-mail: beebe@math.utah.edu, beebe@acm.org, beebe@computer.org (Internet)  
WWW URL: http://www.math.utah.edu/~beebe/  
24 January 2022  
Version 3.146

Title word cross-reference

-1/2, 1/2, 3/2, 5/2 [942]. 0 – 1 [498], 1 [1127], 2  
[1059, 1265, 1228, 1590, 1406, 1226, 1161, 1595]. 2p – 1 [925]. 3  
a = ±2q ± 2r [995]. ab + cd [1438]. Ax = b [351]. AX² + BX + C = 0 [415].  
AXB² + CXD² = E [1071, 753, 752]. β [1515]. C1 [1114, 660, 683]. C²  
[683, 682, 286]. e² [1656]. Eₙ(x) [437]. ℓ₁ [283, 316, 315]. F [803, 802, 617, 12].  
f(x) [403]. F₂ [1565]. H² [1609]. Hₚ [453, 452]. hₚ [1433, 1432]. h -∞ [445].  
i [105]. I₀ [150]. I₁(x)/I₀(x) [336, 332]. I₁.₅(x)/I₀.₅(x) [336, 332]. Iᵥ(x)  
[126, 125, 207]. ith [30]. Jᵥ(x) [126, 125, 207]. k [789, 1515]. k < m [1515].  
[1535], m [1515]. MDMᵀ [876], N [1180, 1584, 105, 30, 1455, 213]. O(log₃ k)  
[789]. O(n(1 + log(N/n))) [841]. O(n²/²τ) [616]. ω [1362]. ±2ᵏ ± 2ᵏ ± [925]. Q  
[1048, 1555, 1420]. QR [1545, 1499, 1460, 1505, 1552, 953, 952, 1412]. rc  
[804, 19, 79]. r×c [542]. s [1347]. T [1543, 1036, 14, 15, 338, 339, 228].
$U(a, x) \ [1165, 1164]. \ UTV \ [1587]. \ v \ [566, 619]. \ V(a, x) \ [1165, 1164]. \ \varphi \ [1285, 1364]. \ W(a, x) \ [1348]. \ x_{n+1} = f(x_n) \ [149]. \ x \geq 0, \ \nu \geq 0 \ [126, 125, 207].$

-Cell [789]. -concave [1036]. -D [1059, 1127]. -Dimensional [792, 213].
-Distribution [802, 14, 338, 228]. -Function [1420]. -Functions
-Test [617, 12]. -Vectors [1455].

/MPI [1641].

1 [1006], 100 [62], 1000 [1626], 1001 [1627], 1002 [1628], 1003 [1635], 1004
1010 [1648]. 1011 [1657]. 1012 [1666]. 1013 [1674]. 1014 [1675]. 1015
[1588]. 179 [4, 94].

2-torsion [1621]. 2.0 [1490]. 2.5 [1236]. 2003 [1419, 1365, 1224, 1298]. 2008
[10, 116]. 2C [387]. 2D [895, 638]. 2Sum [1538].

3D [896]. 3m [1541].

498 [67]. 499 [75]. 4m [1541].


...
Cyclic [201, 514]. cylinder [1165, 1164, 1348]. Cylinders [1647]. Cylindrical [1647].


DAESA [1443, 1440]. DAFNE [467]. DAG [1434]. Dagwood [612].


Decomposition [1641, 1544, 371, 370, 1325, 784, 785, 919, 573, 310, 1711, 691, 876, 1022, 1163, 1226, 1393]. Decompositions [779]. Decrease [830].


Description [400, 896, 1090, 1316]. DESI [903]. Design [914, 209, 1355, 220, 234, 945, 168, 1062, 357, 1293, 1608, 1373, 1291, 462, 1298, 1563, 1581, 1497, 208, 1188, 889, 882, 996, 1308, 1280, 1104, 1231].

Designing [1502, 669]. Detecting [121]. Detection [964, 1555, 1533].

Determinants [97, 385]. Determine [620]. Determining [358].

Deterministic [1682]. Developing [85]. Development [1589, 1181].


Diagrams [1425, 1509]. Dichotomy [1363]. Dictionaries [1690].

Efficiency [187, 242, 341]. Efficient
[1650, 1213, 1688, 1391, 1579, 880, 63, 597, 930, 1309, 411, 1483, 1484, 1605,
1461, 1055, 1241, 123, 1262, 1455, 1359, 570, 1571, 304, 707, 75, 1211, 215, 214,
187, 530, 513, 655, 1495, 1518, 1514, 1699, 1711, 747, 1583, 358, 1615, 666,
682, 1124, 1636, 718, 1311, 1564, 385, 1424, 241, 240, 679, 423, 1513, 565, 146,
1372, 1557, 222, 1174, 1118, 1172, 1168, 1236, 1136, 583, 1389, 1304, 242, 261].
Efficiently [41, 1570, 1063, 1347]. Eigenfunction [732]. Eigenmodes
[1034, 1035]. eigenpairs [1094]. Eigenproblem [757, 821, 786, 1642].
Eigenproblems [1485, 1056, 1251]. Eigensolver [1604, 1316]. eigensolvers
[1252]. Eigenproblem [732, 1689, 1658, 1242, 396, 486, 1499, 613, 797, 57, 118, 447,
1025, 866, 1711, 1663, 1604, 1286, 1093, 1390, 1149, 1144, 1413]. Eigenvalues
[139, 393, 765, 877, 381, 1371, 787, 217, 875, 796, 795, 101, 1003, 1179].
Eigenvectors [139, 765, 217]. Eight [262]. EigIFP [1144].
elegant [1347]. Element [1697, 1260, 1696, 1698, 1371, 1425, 1382, 1611, 1537,
1615, 1519, 278, 462, 1683, 1497, 208, 420, 1301, 1218, 1277, 1356, 1137, 997,
1395, 1130, 1315, 1699, 1303, 1217, 1398]. Elemental [1385]. Elementary
[474, 773, 1656, 1517, 698, 825, 839, 902, 86, 724]. Elementary-Function
[474]. Elements [105, 30, 1623, 1137, 1139, 1624]. Elimination
[429, 428, 610, 499, 539, 385, 384, 204, 200, 1118, 1246]. Ellipsoids [837, 836].
Elliptic [1568, 709, 352, 827, 568, 272, 1607, 1262, 248, 523, 689, 3, 658, 1433,
elrint3d [1330]. Embedded [1577, 1330, 1560]. Empirical [1366, 1216].
Enabled [1497, 1153]. Enabling [1373]. Enciphering [215, 214]. Enclosing
[867, 1609]. Enclosure [853]. Enclosures [1576]. Encryption [1580]. end
[893]. Energy [435, 547]. Equation [494, 967, 577, 576, 932, 415, 359, 233, 1, 1461,
753, 752, 248, 216, 596, 503, 337, 210, 404, 121, 796, 795, 61, 1128, 1110, 1150,
1071, 884, 1087]. Equations
[282, 281, 696, 467, 466, 624, 668, 91, 88, 1243, 1652, 197, 584, 56, 288, 98, 127,
1566, 708, 824, 227, 920, 737, 492, 1579, 43, 163, 161, 633, 746, 148, 1334, 374,
490, 344, 362, 361, 359, 568, 748, 475, 178, 1013, 134, 446, 444, 1241, 1262, 1238,
1327, 1067, 366, 725, 760, 254, 523, 1074, 689, 853, 1498, 445, 1033, 513, 655, 595,
1692, 913, 307, 239, 133, 119, 326, 325, 1433, 461, 212, 285, 399, 1699, 280, 1457,
1443, 66, 65, 355, 1648, 379, 369, 814, 484, 1440, 851, 1536, 646, 801, 585, 669].
Equations
[1435, 92, 89, 55, 54, 1554, 476, 540, 533, 241, 132, 512, 240, 1683,
284, 279, 622, 621, 330, 246, 1409, 1099, 1416, 889, 1054, 1119, 1204, 1073, 996,
1223, 1310, 1156, 1224, 1189, 205, 1307, 1007, 1283, 1377]. Equidistributed
[1565]. Equilibrium [516, 545, 674, 1540, 588]. Errata [242]. Erratum
[207]. Error [53, 1568, 1665, 712, 1383, 1639, 665, 784, 785, 1178, 1575, 912,
1591, 1480, 1550, 405, 1529, 1438, 355, 1486, 667, 666, 92, 89, 247, 120, 1606,
J6 [69, 80, 59, 193]. Jacobi [1681, 1680]. Jacobian [470, 469, 1118, 1395].
Java [1644, 1504, 1326]. JBESS [126, 125, 207]. Jet_fitting_3 [1268].
Jordan [303, 298].

K2 [115]. Kalman [1306, 1126]. KBLAS [1479]. Kernel [1669, 1506].
Kernels [1598, 1344]. Key [93, 87]. Keys [93, 87]. Keywords [518, 693, 473].
Kind [91, 88, 1243, 708, 313, 144, 414, 6, 58]. King [377, 378].
Kolmogorov [123, 151, 29, 82]. Kronnecker [1605]. Kronrod [1571].

Larkin [497, 536]. Last [724]. Lattice [808, 826, 1476, 1330, 1542, 1476].
Level [730, 358, 33, 39, 1381, 690, 1498, 673, 1248, 1014, 956, 955, 845, 1287, 992, 313, 1173]. Level-3 [823, 756, 1381, 1498, 1248].

Linear

Linear-quadratic

Linearized

Linearly

Lines

Linking

Linnea

Liouville

Lisp

List

Lists

LLDRLF

LLRANDOM

LMEF

LMI

Local

Localization

Locally

Locating

Location

Location

Log

log-concave

log-F

log-likelihood

Logarithm

Logarithmic

long

long-period

Longest

Loops

LOPSI

Loss

Low

Low-discrepancy

Low-Rank

Low-Space

Low-Variance

Lower

LZ

M1

M3RK

MA48

MA57

MACHAR

Machine

Macro

Macros

MACSYMA

MADS

magnetic

Magnitudes

Maintenance

Making

MANBIS

Manifolds

Manipulating

Manipulation

Many

Many-continuous

Many-Core

Manycore

Maple

Mapped

mapping

Maps

Marching

Marcum

Markov

Marsaglia

Masked

Mass

Massey

massively

MATCHCONT

Math

Mathemagix

Mathematical

Mathieu

Mathlib

MATLAB

MATLAB
Matrices\textsuperscript{[1402].} MATLAB/GNU\textsuperscript{[1493].} MATLAB/Octave\textsuperscript{[1402].}

Matrices\textsuperscript{[798, 470, 469, 521, 553, 411, 972, 783, 877, 931, 517, 1026, 1643, 206, 396, 486, 97, 917, 1535, 189, 716, 1669, 57, 118, 530, 902, 378, 602, 217, 614, 719, 875, 335, 331, 192, 191, 1372, 1304, 1048, 1120, 1003, 1179, 1143, 953, 952, 522, 1093, 1279, 1163]. Matrix

[1479, 938, 1586, 1481, 22, 1239, 929, 139, 1598, 112, 1456, 415, 1465, 393, 765, 179, 209, 631, 1561, 178, 1365, 1525, 381, 425, 424, 1489, 706, 1699, 552, 1449, 688, 1385, 210, 1367, 250, 718, 1488, 1363, 948, 154, 101, 1270, 1374, 1541, 1678, 1024, 1378, 1042, 1094, 1247, 1276, 998, 1344, 1343, 1234, 1071, 1073, 884, 1022, 1251, 1078, 1287, 1072, 1352, 1567]. matrix-addition\textsuperscript{[1344].} matrix-computation\textsuperscript{[1344].} Matrix-Free\textsuperscript{[395, 1611, 1699].} Matrix-multiplication\textsuperscript{[1344].} Matrix-Vector\textsuperscript{[1479, 1525].} MATSLISE\textsuperscript{[1156, 1490].}

Maximally\textsuperscript{[1565].} Maximum\textsuperscript{[780, 262, 345, 1628, 966, 1355].}

Maxwell\textsuperscript{[1692].} McClellan\textsuperscript{[1502].} ME28\textsuperscript{[359].}

Measure\textsuperscript{[837, 836, 273].}

MEBDF\textsuperscript{[746, 745].}

Mechanics\textsuperscript{[1655].} Mechanism\textsuperscript{[1458].}

Medial\textsuperscript{[1226].}

Medium\textsuperscript{[1627, 1666].}

Medusa\textsuperscript{[1694].}

Membership\textsuperscript{[1518].}

Memory\textsuperscript{[1051, 945, 1516, 1512, 1489, 1514, 1385, 718, 1488, 1424, 1162, 1083, 1278, 1229, 1601]. Memory-Efficient\textsuperscript{[1514].} memory-minimizing\textsuperscript{[1162].}

Merge\textsuperscript{[267].} Mersenne\textsuperscript{[1565, 1384].} Mesh\textsuperscript{[668, 1654, 1478, 1454, 1693, 1610, 1600, 1514, 1324, 1615, 278, 1442, 1694, 1228, 1013]. Mesh-free\textsuperscript{[1694].}

Mesh-Moving\textsuperscript{[668].} Meshes\textsuperscript{[1539, 1241, 1514, 485, 1059]. Message\textsuperscript{[1534, 1415]. }Metadata\textsuperscript{[1269].}


Methods\textsuperscript{[321, 1630, 915, 920, 1579, 914, 597, 903, 262, 844, 1697, 793, 964, 562, 654, 1696, 1691, 287, 968, 1052, 1067, 743, 736, 843, 263, 1569, 1672, 387, 556, 1457, 42, 1503, 559, 1432, 1661, 210, 1291, 121, 373, 158, 1694, 423, 201, 1662, 1258, 1541, 279, 246, 1301, 897, 1708, 1137, 1016, 1195, 1103, 1162, 996, 1274, 1217, 1072, 1413, 1316, 1307, 1046]. MGRIT\textsuperscript{[1685].} midpoint\textsuperscript{[1411].}

Mie\textsuperscript{[1647].} MieSolver\textsuperscript{[1647].} Mildly\textsuperscript{[777].} MIMD\textsuperscript{[823].} Minefield\textsuperscript{[33].}

minima\textsuperscript{[1102].} Minimal\textsuperscript{[431, 547, 26, 267, 81, 1140]. Minimization\textsuperscript{[625, 496, 832, 104, 130, 440, 21, 44, 744, 740, 741, 526, 76, 318, 982, 961]. Minimizing\textsuperscript{[579, 922, 1162, 653].} Minimum\textsuperscript{[301, 296, 292, 450, 541, 499, 1526, 1123, 1122, 1121]. Minimum-Cut\textsuperscript{[301, 296].} Minimum-Degree\textsuperscript{[499].} Mining\textsuperscript{[1012].} Minkowski\textsuperscript{[150, 336].} Mixed
MultiZ [1651]. MultRoot [1116]. MUMPS [1295].


O1 [229]. Object [914, 1484, 1365, 1080, 1647, 1578, 1033, 913, 1293, 1291, 1218, 1059, 1152, 949, 1400, 1117, 1206, 1181, 1044]. Object-Oriented [914, 1484, 1365, 1647, 1578, 1033, 913, 1293, 1291, 1080, 1218, 1059, 1152,
Observation [1025]. Obtaining
[345, 138]. Octave [1571, 1402, 1493]. Octave/MATLAB [1571]. ODE
[333, 290, 776, 354]. ODEs [334, 1566, 1084, 554, 697, 514, 289, 311].
ODESSA [596]. odeToJava [1448]. ODEXPERT [776]. ODRPACK
[659]. ODRPACK95 [1221]. Off [1013]. Off-mesh [1013]. One [824, 344,
340, 322, 8, 1591, 626, 644, 135, 141, 215, 214, 108, 1560, 822, 669, 684,
1073]. One-Dimensional [824, 340, 322, 1591, 1560, 669, 684]. One-Norm
[626, 644]. One-Pass [135]. one-sided [1073]. One-Way [215, 214]. Online
[1564, 1332]. Open [1652, 1240]. Open-Source [1652, 1240]. OpenAD
[1240]. OpenGL [1115, 1596, 1704]. OpenGL-
[1596, 1704]. OpenMP [1599]. Operands [1475]. Operation [1475, 1589].
Operations [1586, 1639, 178, 1637, 1394, 1038]. Operator [1472, 1556].
Operators [1632, 1611, 1106, 1297, 1236]. OPT [1206]. Optimal
[1653, 312, 710, 766, 403, 985, 828, 1246, 1421, 1432, 452, 1337, 1589, 1284,
1317, 1351, 1308, 1302]. Optimality [1439, 1671]. Optimally [1412].
Optimization
[624, 1645, 915, 1614, 844, 489, 495, 1428, 936, 935, 1577, 234, 465, 986, 985, 156,
375, 1578, 1253, 1582, 1616, 853, 1019, 1693, 1339, 1619, 1537, 1602, 1293, 1474,
327, 320, 767, 557, 569, 1540, 862, 1453, 47, 758, 1259, 1452, 673, 940, 1049, 1205,
1000, 1102, 1096, 1185, 1290, 1085, 956, 996, 1041, 1289, 1206, 1349, 1281, 1047].
Optimizations [1254, 1303, 1344]. Optimized [1479, 256, 1398]. Optimizer
[1540]. Optimizing [1456, 1643, 1173, 1522]. option [1302]. Orbits
[1652, 1360, 1560, 671]. Order [551, 694, 871, 1630, 1566, 577, 576, 633, 680,
746, 144, 1543, 1320, 937, 725, 248, 523, 1244, 1342, 1358, 942, 747, 814, 1435,
528, 796, 795, 1554, 1651, 1176, 1152, 1631, 1016, 1111, 402, 943, 1237].
Ordered [685]. Ordering [381, 5, 600, 101, 155, 1123, 1122, 1121, 1112].
Orderings [1547]. Orders [1020, 723, 1021, 1184, 1110]. Ordinary [696, 932,
1579, 43, 633, 746, 374, 178, 446, 444, 725, 596, 595, 92, 89, 1554, 1310, 1307].
Oriented [914, 1484, 1365, 1647, 1578, 1033, 1509, 913, 1293, 1291, 1218,
1059, 1152, 949, 1400, 1080, 1117, 1206, 1181, 1044]. Orienting [1539].
Orthogonal [598, 508, 659, 1532, 813, 1076, 962, 1300, 1221]. ORTHPOL
[813, 962]. Oscillating [529, 1066]. Oscillatory [446, 1294]. Osculatory
[346, 349]. Other [686, 1662, 434]. Out-of-Core
[550, 1367, 1133, 1183, 1282, 1104, 1314]. Outlier [1533]. OutlierLib [1533].
Overlapping [815]. overloaded [1172, 1389]. Overloading [1472, 1556].
overview [1146, 1064, 1151, 1147].

P2MESH [1059]. packable [1201]. Package [551, 694, 871, 733, 1641, 915,
920, 171, 170, 257, 276, 477, 1268, 844, 38, 773, 774, 911, 924, 1325, 991, 1431,
1574, 714, 904, 433, 432, 608, 695, 753, 813, 220, 917, 567, 195, 1685, 306,
1669, 1441, 675, 387, 1244, 704, 1706, 16, 425, 424, 1489, 186, 404, 974, 973,
778, 50, 1488, 822, 744, 740, 741, 948, 154, 1695, 715, 622, 96, 982, 211, 1570,
268, 1191, 1288, 1214, 1198, 1176, 1090, 1160, 1200, 1084, 1089, 1076, 883,
27

1157, 962, 1197, 887, 1275, 894, 878, 1280, 1035, 1306, 1116.

Problems [1197, 1390, 402, 1169, 1149, 1095, 1144, 1317, 1351, 885, 993, 1413, 1306].


produce [1078]. Product [1632, 72, 779, 1189, 1190, 1007]. Product-Type [72]. Products [1605, 261, 222, 881, 880, 1414].


Propagating [1698]. Properly [510]. Properties [1268, 199, 1347].


Pseudoperipheral [235]. Pseudorandom [1702, 946, 1023, 1032, 886].

pseudospectral [1317, 1351]. Pseudo-Arclength [1469].


pyMDO [1293]. PyMGRIT [1685]. pySDC [1617]. pySDC-Prototyping [1617].


QDWH [1501, 1601]. QDWH-based [1601]. QDWH-SVD [1501]. QLP [1416].


QR-Like [797]. QRUP [364, 398]. QSHEP2D [604]. QSHEP3D [605]. QUADLOG [1214].


Quadrature [1653, 712, 1532, 72, 198, 912, 340, 322, 813, 987, 1470, 229, 17, 1321, 1571,
Quadratures \cite{1631, 589, 452}. Quality \cite{1594, 1442}. Quantile \cite{815}. Quantiles \cite{15, 339, 228}. Quantitative \cite{420}. Quartic \cite{1461, 1648}. Quasi \cite{1567}. Quasi-Newton \cite{1645, 743, 648}. Quasirandom \cite{599, 560, 1079}. Quasi-Likelihood \cite{780}. Quasi-matrix-free \cite{1567}. Quasi-Newton \cite{1645, 743, 648}. Quasirandom \cite{599, 560, 1079}. Query \cite{1324}. Quickhull \cite{906}. Quicksort \cite{24, 103, 140}. Quindiagonal \cite{127}. Quintic \cite{1459, 389, 102, 417, 484, 683}. Quotient \cite{292}. QZ \cite{206, 396, 486, 124}. R \cite{1010, 1674, 1695}. R13 \cite{1683}. r2d2lri \cite{1058}. Radau \cite{1661}. Radiative \cite{1435}. Radix \cite{1480, 468}. Radix-Independent \cite{1480}. Random \cite{501, 1674, 73, 11, 293, 1710, 531, 1580, 587, 805, 147, 464, 704, 1436, 1706, 769, 768, 572, 601, 685, 159, 1564, 219, 641, 372, 491, 565, 146, 1708, 1216, 960, 925}. Random-Access \cite{614}. random-number \cite{925}. Randomization \cite{1380, 1489, 1488}. Randomized \cite{1523, 1587}. Randomly \cite{448}. randUTV \cite{1587}. Range \cite{772, 1470, 328, 324, 1190, 1038, 1039}. range-independent \cite{1038, 1039}. Ranges \cite{138}. Rank \cite{735, 1585, 1256, 1476, 1587, 1143, 953, 952, 1550, 1686, 1168, 1407}. Rank-1 \cite{1476}. Rank-Deficient \cite{735, 1168}. Rank-Revealing \cite{1256, 1587, 1350}. Ranks \cite{138}. Raphson \cite{1712, 1592}. Rapidly \cite{680, 1445, 1446}. Ratio \cite{147, 1004, 4, 94}. Ratio-of-Uniforms \cite{1004}. Rational \cite{735, 1334, 1532, 149, 987, 1621, 119, 497, 536, 1258}. Ratios \cite{582, 763, 561, 332}. Ray \cite{684}. Rayleigh \cite{719}. RCR \cite{1463, 1624, 1489, 1681, 1446}. Real \cite{860, 859, 1544, 144, 699, 553, 1431, 362, 381, 1257, 31, 41, 626, 644, 49, 83, 217, 762, 875, 101, 335, 331, 1606, 1141, 1164, 1165}. Realistic \cite{356}. RealPaver \cite{1167}. Rearrangement \cite{143}. Reasonably \cite{211}. Recipes \cite{969}. recommendation \cite{1012}. recommending \cite{1011}. Reconstruction \cite{1548, 1273}. Rectangles \cite{638}. Rectangular \cite{734, 1313, 525, 898}. rectangular-grid-data \cite{898}. Rectilinear \cite{301, 296}. Recurrence \cite{487, 167}. recurrences \cite{1161}. recursion \cite{950, 1136}. Recursive \cite{266, 981, 1073, 1074, 706, 1551, 1042, 1159}. Recycling \cite{1679}. Reduced \cite{401, 1543, 168, 1003, 1143}. reduced-rank \cite{1143}. Reducible \cite{1584}. Reducing \cite{1396, 1374}. Reduction \cite{1430, 1029, 112, 1613, 765, 917, 113, 107, 1027, 382, 232, 1106, 1030, 998, 1138, 1388, 1171, 1072, 1311}. reduction/transformation \cite{1106}. Reference \cite{1559, 1065}. References \cite{518, 693, 473}. Refinement \cite{668, 1654, 1272, 1514, 658, 255, 251, 1178}. Refinements \cite{278}. Reformulation \cite{1566}. Region \cite{1428, 440, 186, 1197, 1233}. Regions \cite{233, 337, 404, 957}. Regression \cite{598, 457, 659, 780, 1695, 1221}. Regular \cite{1363, 998, 884}. Regularity \cite{912}. regularization \cite{1233}. Regularly \cite{840}. Rejection \cite{805, 861, 464}. relabel \cite{1628}. ReLAPACK \cite{1551}. Related \cite{392, 391, 699, 41, 1341, 1213, 1214, 1247, 1401, 1050}. Relations \cite{487, 167}. Relative \cite{560, 405, 1396}. Relatively \cite{1557}. Relaxation
[32]

[1580, 1546, 1096]. **Salesman** [873, 872]. **Sample** [266, 789, 138, 1513]. **Sampled** [1268]. **Samples** [531, 29, 82]. **Sampling** [416, 501, 861, 627, 662, 1464, 1004, 841, 685, 1564, 1513, 491, 565, 1713, 1175]. **Sampling-Vectorized** [1564]. **satisfaction** [1167]. **SBA** [1275]. **SBP** [1284]. **SBR** [1030]. **Scalar** [1585, 1049, 1148]. **ScaLAPACK** [1296]. **Scalar** [427, 426, 1492, 1078, 681]. **Scale** [873, 872, 1590, 495, 1428, 1474, 569, 744, 740, 741, 758, 488, 1682, 1286, 1641, 1205, 1096, 1251, 1289, 1349, 1233, 1413, 1306, 940]. **Scaling** [1546, 1394, 670, 833, 1314, 1124]. **Scanning** [75]. **SCASY** [1328]. **Scattered** [604, 605, 603, 934, 977, 975, 976, 1329, 899, 1002, 879, 1114]. **scattered-data** [899, 1002]. **Scattering** [1627, 1647]. **schedules** [1162]. **Scheduling** [1434, 152, 1284]. **Schema** [358]. **Scheme** [539, 646]. **Schemes** [516, 545, 1558]. **Schmidt** [255, 251]. **School** [1706]. **Schrödinger** [1156]. **Schur** [897, 998, 784, 785, 1285, 1187, 1378]. **Schur-complement** [1085]. **Science** [1131]. **Scientific** [519, 611, 905, 1326, 1401, 1011]. **Scope** [810, 847, 848, 811, 34]. **Scorer** [1075]. **Scrambled** [1702, 1491, 1082]. **SD** [311]. **Selected** [783, 877, 1516, 1335, 875]. **Selection** [736, 843, 738, 451, 1663, 1310]. **Self** [827, 983, 1663]. **Self-adapting** [983]. **Self-Adjoint** [827]. **Self-consistent** [1663]. **SelInv** [1335]. **Semantic** [1477]. **Semi** [1489, 1488, 1423, 1105]. **Semi-infinite** [1105]. **Semi-Separable** [1489, 1488]. **Semi-Stencil** [1423]. **Semi-Separable** [1105]. **Semi-Separable** [1489, 1488]. **Semi-Separable** [1489, 1488]. **Semi-Separable** [1482]. **SENAC** [730]. **Sense** [509]. **Sensitivity** [1646, 165, 596, 595]. **Sensor** [1369]. **sep** [1285]. **sep-inverse** [1285]. **Separable** [1483, 689, 1489, 1488, 241, 240]. **Separably** [421]. separation [884]. **Separators** [647]. **Sequence** [599, 414, 1679, 560, 1330, 1079]. **Sequences** [842, 427, 426, 926, 557, 1604, 1082]. **Sequential** [1508, 501, 1175, 685, 739, 636, 565, 1309]. **Serial** [1453, 1290]. **Series** [1377, 802, 1528, 288, 700, 374, 991, 990, 427, 426, 363, 1647, 64, 67, 353, 976]. **Service** [35, 274]. **Set** [1687, 364, 398, 344, 874, 592, 628, 591, 664, 663, 134, 1257, 703, 966, 354, 1061, 1053, 1141, 1169]. **Sets** [361, 164, 162, 280, 1583, 86, 603, 1081]. **Several** [107, 868]. **SFCGen** [1136]. **SFSDP** [1369]. **Sham** [1283]. **Shape** [924, 923, 346, 349, 907]. **Shape-Preserving** [924, 923, 346, 349]. **Shaped** [1496]. **ShearLab** [1466]. **Shearlet** [1466]. **Shearlets** [1466]. **Shepard** [994, 604, 605, 975, 976, 1329]. **Shift** [1663, 1203]. **Shift-and-invert** [1203]. **Shift-invert** [1663]. **shifted** [1354]. **Shortest** [305, 418]. **Should** [86]. **shuffling** [1708]. sic [1317]. **SICEDR** [393]. side [1602]. **Sided** [1074, 1073]. **Sides** [680]. **SiftDec** [1097]. **SIGMA** [625]. signal [1086]. **Signals** [835]. **Signatures** [1636].
Symmetric

System

Systematic

Systems

Systolic

Table

Table-Driven

Tables

Tabulated

Tail

Tails

Talbot

Tang

Tangent

TAO

Tapenade

Tarjan

Task

Taylor

Technical

Technique

TEDDY2

Temme

Template

Template-Driven

Templates

Test

Testing

TestU01

TestGen

TetGen

Tetrahedral

Tetrahedron

Text

th

Their

Them

Theoretic

Theoretical

Theory

Thick

Thick-Restart

Thinning

Third

Third-Degree

Thoughts

thread

thread-level

thread-safe

threads

Three

Three-Dimensional

Three-Dimensional

Threshold

TIDES

Tight

tile

Tiles

Tiling

Time

Terabytes

Terms

Time-Dependent [668, 824]. Time-Frequency [1493].
Time-Stepping [1261, 1696, 1077]. tiny [1396]. TMATROM [1543].

tracking [893]. Trainable [1540]. Training [1603]. Trans [583].
Triangular [99, 1598, 190, 1271, 184, 1074, 1498, 1514, 40, 688, 485, 1333, 1554, 1073, 1087]. Triangularization [179]. Triangulation [1666, 1450, 481, 933, 878].
Two-Dimensional [911, 827, 326, 325, 1615, 1291, 483, 482, 476, 1542, 878, 1058]. Two-Sided [1074]. Two-Stage [1320]. Two-step [1103]. Two-Steps [1661]. Type [1520, 72, 813, 1328, 1327, 254, 901, 454, 962, 1073, 1274].
Unsymmetric [972, 359, 783, 877, 1067, 875, 1230, 1113, 1112, 889, 882, 1108, 1083, 1274].
unsymmetric-pattern [1230, 1113, 1112]. up-and-downdating [1346].
UPC [1542]. Update [1266, 1271]. Update/Downdate [1266, 1271].
Updated [982, 1061]. Updates [648]. Updating [364, 398, 1255, 691, 1076, 1133].
Upper [53, 381, 1576, 101]. Usage [51, 397, 408, 581, 1621, 238, 237, 609, 744, 740].
Voronoi [1509, 933]. Vortex [1291]. VTDIRECT95 [1290, 1453].


x [1675]. XMP [357]. XNETLIB [854]. xorshift [1491].

Year [630]. Yorke [286].


References


REFERENCES


REFERENCES

CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [196].


[27] S. L. Watkins. ACM Algorithm 483: Masked three-dimensional plot program with rotations. *Communications of the ACM*, 17(9):520–523,
REFERENCES

September 1974. CODEN CACMA2. ISSN 0001-0782 (print), 1557-7317 (electronic). See also [59].


REFERENCES


REFERENCES


REFERENCES


REFERENCES


[82] J. Pomeranz. Remark on “Algorithm 487: Exact cumulative distribution of the Kolmogorov–Smirnov statistic for small samples [S14]”. *ACM
REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


[125] D. E. Amos, S. L. Daniel, and M. K. Weston. CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$. *ACM Transactions on Mathematical Software*, 3(1):76–92, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

[126] D. E. Amos, S. L. Daniel, and M. K. Weston. Algorithm 511: CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$ [S18]. *ACM Transactions on Mathematical Software*, 3(1):93–95, March 1977. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See erratum [207].


REFERENCES


REFERENCES


REFERENCES


REFERENCES

Skeel:1977:BLM

Payne:1977:NRN

Boyce:1977:IPF

Cabay:1977:CTE

Eddy:1977:NCH

Cabay:1977:AEC

Eddy:1977:ACN
REFERENCES


REFERENCES


REFERENCES


REFERENCES


Polak:1978:TPP

Larson:1978:ECE

Brown:1978:SPA

Gustavson:1978:TFA

Chen:1978:PPB

Ward:1978:ECS

Ward:1978:AAC
R. C. Ward and L. J. Gray. Algorithm 530: An algorithm for computing the eigensystem of skew-symmetric matrices and a class of symmetric


REFERENCES  


REFERENCES


[207] Donald E. Amos. Erratum: “Algorithm 511: CDC 6600 subroutines IBESS and JBESS for Bessel functions $I_\nu(x)$ and $J_\nu(x)$, $x \geq 0, \nu \geq 0$ [S18]”. ACM Transactions on Mathematical Software, 4(4):411, December 1978. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [126].


Kahaner:1979:EAD


Knoble:1979:EOW


Knoble:1979:AEO


Leeb:1979:ACV


Nikolai:1979:AEE


Krogh:1979:AAP


Schrage:1979:MPF

REFERENCES


[227] Richard A. Bogen. Addendum to “Analytically solving integral equations by using computer algebra”. *ACM Transactions on Mathematical
REFERENCES


[234] Philip E. Gill, Walter Murray, Susan M. Picken, and Margaret H. Wright. The design and structure of a Fortran program library for optimization.
REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Barrodale:1980:ASC


Verwer:1980:AME


More:1980:ABF


Watson:1980:ACY


Gear:1980:RKS


Barton:1980:TSS


Jackson:1980:AIY

REFERENCES


REFERENCES


September 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES

December 1980. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES


REFERENCES


REFERENCES


[332] Geoffrey W. Hill. Evaluation and inversion of the ratios of modified Bessel functions, $I_1(x)/I_0(x)$ and $I_{1.5}(x)/I_{0.5}(x)$. *ACM Transactions on Mathematical Software*, 7(2):199–208, June 1981. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES

Hill:1981:RSD


Hill:1981:RSQ


Fritsch:1981:CIU


Ukkonen:1981:CER


Linnainmaa:1981:SDP


Lii:1981:CBC


Dew:1981:SLR

REFERENCES


REFERENCES


REFERENCES


REFERENCES


Laurie:1982:ACA


Flamm:1982:RHE


Lewis:1982:RMB


Ellison:1982:UUI


Schreiber:1982:NIS


Sasaki:1982:EGE

REFERENCES


REFERENCES


REFERENCES


[413] Werner C. Rheinboldt and John V. Burkardt. Algorithm 596: a program for a locally parametrized continuation process. *ACM Transactions on
REFERENCES


[434] W. V. Snyder and R. J. Hanson. Algorithm 607: Text exchange system: a transportable system for management and exchange of programs and


REFERENCES

CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic). See [299].


[448] Melanie L. Lenard and Michael Minkoff. Randomly generated test problems for positive definite quadratic programming. *ACM Transactions on
REFERENCES


Jones:1984:SRM


Haymond:1984:AMS


Shapiro:1984:IRG


Sikorski:1984:OQS


Sikorski:1984:AFS


Rall:1984:DPS


Lawrie:1984:CCC


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES

Davenport:1985:PRA


Coleman:1985:SES


Coleman:1985:AFS


Houstis:1985:CSS


Houstis:1985:AGC


Houstis:1985:AIIH

REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Amos:1986:APP


Nash:1986:AST


Crawford:1986:APR


Hake:1986:RCC


Stewart:1986:CNC


Milovanovic:1986:CEI

[556] G. V. Milovanović and M. S. Petković. On computational efficiency of the iterative methods for the simultaneous approximation of polynomial


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Hanson:1987:ATA


DiDonato:1987:AFS


Johnson:1987:CES


Bar-On:1987:PPA


Schoenauer:1987:SCB

REFERENCES

Ahlfeld:1987:NPG


Haas:1987:MPR


Schneider:1987:EEA


Elhay:1987:AIF


Morgan:1987:CBS


Dongarra:1988:ESF


Butcher:1988:TEI


Ammann:1988:RCR


Bratley:1988:AIS


Robertazzi:1988:BOF


Monahan:1988:CAG


Melhem:1988:MRS

REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Morgan:1989:FAI


Patterson:1989:AGIa


Patterson:1989:AGIb


Tang:1989:TDI


Vitter:1989:ADH

REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


References

September 1990. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES

Bailey:1991:AFS


Alfeld:1991:EAS


Alfeld:1991:AGE


Gustafsson:1991:CTT


Boubez:1992:PED


Lucks:1992:ASM


REFERENCES


Majaess:1992:AAA


Tang:1992:TDI


Gardiner:1992:SSM


Gardiner:1992:AFS


Weerawarana:1992:PCG

REFERENCES


Hansen:1992:FSG


Demmel:1992:SBA


Ammar:1992:IDC


Toint:1992:LFS


Berntsen:1992:ADA

REFERENCES


REFERENCES


Fisher:1992:DTO


Nash:1992:ABS


Leva:1992:FN


Leva:1992:ANR


Boisvert:1992:PVS

REFERENCES


REFERENCES


REFERENCES


Fishman:1993:GSC


Bentley:1993:TDI


Bailey:1993:AMT


Berntsen:1993:AAA


Duffy:1993:NIL
REFERENCES


REFERENCES


Snyder:1993:AFI


Ribbens:1993:TPM


Abernathy:1993:ASE


Abernathy:1993:APC


Clarkson:1993:RAF

REFERENCES


Grassmann:1993:REC


Khoury:1993:TPG


Joe:1993:ILM


Drezner:1993:CAC


Boisvert:1994:CST


REFERENCES


REFERENCES

Brown:1994:CAS


Taswell:1994:AWT


Dunkl:1994:CHI


Dunkl:1994:AHI


Fruchtl:1994:NAE


Kearfott:1994:AIP


Fateman:1995:FFP


Kearfott:1995:FER


Dongarra:1995:SDX


Grosse:1995:RM


Demetriou:1995:ALF


Weber:1995:AIG

REFERENCES


REFERENCES


Dobmann:1995:APF


Sullivan:1995:NAU


Miminis:1995:AFS


Alefeld:1995:AEZ


Rizzardi:1995:MTM

REFERENCES


REFERENCES


Scott:1995:ACC


Kaufman:1995:CMD


Duff:1995:CCS


Renka:1996:ATC


Renka:1996:ASS


Buis:1996:EVP

REFERENCES


REFERENCES


Griewank:1996:AAP


Driscoll:1996:AMT


Duff:1996:DMC


Duff:1996:EZD


Price:1996:RA


Hull:1996:MBP


Macleod:1996:AMS


Blom:1996:AVVa


Blom:1996:AVVb


Andersen:1996:MSM

REFERENCES


REFERENCES


REFERENCES


Bouaricha:1997:ASS


Cabay:1997:AEW


Geurts:1997:AFP


Blackford:1997:PEN


Ho:1997:DND

REFERENCES


[925] Pei-Chi Wu. Multiplicative, congruential random-number generators with multiplier $\pm 2^{k_1} \pm 2^{k_2}$ and modulus $2^p - 1$. *ACM Transactions on
REFERENCES


REFERENCES


REFERENCES

Greenberg:1997:ACS


Bai:1997:ASF


Watson:1997:ASF


Zhu:1997:ALF


Karp:1997:HPD


MacLeod:1998:AFD

REFERENCES


REFERENCES


[955] Bo Kågström, Per Ling, and Charles Van Loan. GEMM-based level 3 BLAS: high-performance model implementations and performance eval-
REFERENCES


REFERENCES


REFERENCES


Pryce:1999:TPS


Pryce:1999:AST


Renka:1999:ACC


Renka:1999:ATC

REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES 213


REFERENCES

468, December 2003. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


[Falgout:2005:PSH]


[Hernandez:2005:SSF]


[Hindmarsh:2005:SSN]


[Heroux:2005:OTP]


[Castillo:2005:FOO]


[Naumann:2005:DEF]

Tang:2005:DNI


Mu:2005:PMN


Ledoux:2005:MMP


Gao:2005:AMS


Klimke:2005:ASP


Shellman:2005:ARF


Davis:2005:ACS

REFERENCES


REFERENCES


Foster:2006:AEA


Hasselman:2006:RAF


Joffrain:2006:AHT


Quintana-Orti:2006:IPR


Forth:2006:EOI


Kirby:2006:OFL


REFERENCES

Sala:2006:OOF


Kirby:2006:CVF


Meshar:2006:CSS


Alhargan:2006:ASC


Gray:2006:AAA


LEcuyer:2006:ISB


Kressner:2006:BAR

REFERENCES

521–532, December 2006. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


2007. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


REFERENCES


REFERENCES


REFERENCES


REFERENCES


Utke:2008:OFM


Goldani-Moghaddam:2008:ECU


Gao:2008:IEA


Atkinson:2008:ASF


Kodama:2008:ASP


Bartlett:2009:HDS


Naumann:2009:OVE


REFERENCES

Huyer:2009:SSN

Kirby:2009:BDS

Quintana-Orti:2009:ULF

Drmac:2009:FRR

Fraysse:2009:ASF

VanDeun:2009:ANB

Waki:2009:ASS
REFERENCES


REFERENCES


REFERENCES


REFERENCES


[1324] Carl Ollivier-Gooch, Lori Diachin, Mark S. Shephard, Timothy Tautges, Jason Kraftcheck, Vitus Leung, Xiaojuan Luo, and Mark Miller. An interoperable, data-structure-neutral component for mesh query and


[1330] Tiancheng Li and Ian Robinson. Algorithm 906: elrint3d — a three-dimensional nonadaptive automatic cubature routine using a sequence of


REFERENCES


REFERENCES


Zaghloul:2011:ACF


Lantoine:2012:UMV


Gustavson:2012:PCE


DeWitte:2012:IIC


More:2012:EDN


Lawrence:2012:ACD


Sadkane:2012:ASM


REFERENCES

Hauenstein:2012:AAC


Ji:2012:AMF


Wimmer:2012:AEN


Notz:2012:GBS


VanZee:2012:FAR


Bell:2012:PSA


Burton:2012:CCN

[1376] Benjamin A. Burton and Melih Ozlen. Computing the crosscap number of a knot using integer programming and normal surfaces. *ACM*


February 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).


July 2013. CODEN ACMSCU. ISSN 0098-3500 (print), 1557-7295 (electronic).

**Dingle:2013:RIT**


**deDinechin:2013:ZRT**


**Russell:2013:OCG**


**Mehra:2013:ASW**


**Davis:2013:AFO**


**Gebremedhin:2013:CSG**


**Poppe:2013:CMO**


REFERENCES


REFERENCES


[1441] Carlo Janna, Massimiliano Ferronato, Flavio Sartoretto, and Giuseppe Gambolati. FSAIPACK: a software package for high-performance fac-
REFERENCES


Kroshko:2015:OPN


Nelson:2015:RGH


Kowalczyk:2015:CRF


Fu:2015:AMT


Wittek:2015:ANS


Sosonkina:2015:RAV


Jamin:2015:CGF

[1454] Clément Jamin, Pierre Alliez, Mariette Yvinec, and Jean-Daniel Boissonnat. CGALmesh: a generic framework for Delaunay mesh genera-
Graillat:2015:ECF


Dalton:2015:OSM


Naumann:2015:ADN


Wang:2015:ACA


Dong:2015:APL


Granat:2015:APL


[1467] Benjamin A. Burton, Thomas Lewiner, João Paixão, and Jonathan Spreer. Parameterized complexity of discrete Morse theory. *ACM Trans-
REFERENCES


REFERENCES


Boyer:2016:MMW


Wang:2016:PGM


Davis:2016:EHA


Delgado:2016:APO


Benner:2016:AFS


Pew:2016:ABB


[1492] Endre László, Mike Giles, and Jeremy Appleyard. Manycore algorithms for batch scalar and block tridiagonal solvers. *ACM Transactions on


REFERENCES


Garrett:2016:NAB


vanderHoeven:2016:MSA


Sukkari:2016:HPQ


Filip:2016:RSI


Ong:2016:ARM


Sluanschi:2016:AAD


REFERENCES


Tozoni:2016:API


Malhotra:2016:ADM


Vallivaara:2016:SAS


Meister:2016:PME


Rump:2017:IPK

REFERENCES


REFERENCES


REFERENCES


[1540] Margherita Porcelli and Philippe L. Toint. BFO, a trainable derivative-free brute force optimizer for nonlinear bound-constrained optimization and equilibrium computations with continuous and discrete variables.
REFERENCES


VanZee:2017:IHP

Szo:2017:PET

Ganesh:2017:ATM

Brake:2017:ABN

Drmac:2017:AQP

Anderson:2017:ASS
REFERENCES


Rizzardi:2017:ATS


Snyder:2017:AES


Fahmy:2017:AFC


Weinstein:2017:AAT


Zaghloul:2017:ASE


Mehra:2017:ASC

REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


REFERENCES


[1604] Jan Winkelmann, Paul Springer, and Edoardo Di Napoli. ChASE: Chebyshev accelerated subspace iteration eigensolver for sequences of


REFERENCES


Kronbichler:2019:FMF


Johansson:2019:CHF


Dieguez:2019:TPR


Cartis:2019:IFR


Pardue:2019:AEP


Ito:2019:ABS


Kirby:2019:CGG


Lindquist:2019:RCR


Speleers:2019:ACM


Davis:2019:ASG


Burgel:2019:AIM


Kara:2019:AGC

Huang:2020:SAR


Arevalo:2020:SPA


Cui:2020:HON


Betcke:2020:PAG


Abhyankar:2020:PDL


[1639] Nicolas Brisebarre, Mioara Joldes, Jean-Michel Muller, Ana-Maria Nanes, and Joris Picot. Error analysis of some operations involved in


REFERENCES


REFERENCES


[1656] Timothée Ewart, Francesco Cremonesi, Felix Schürmann, and Fabien Delalandre. Polynomial evaluation on superscalar architecture, applied


Uphoff:2020:YAT


Williams-Young:2020:SSS


Spring:2020:FCS


Barabasz:2020:EA1


Chang:2020:ADI


Scott:2021:SLS


REFERENCES


[Flegar:2021:APB]


[Osborn:2021:RCR]


[Villa:2021:HES]


[Theisen:2021:FTM]


[Guthe:2021:AFS]

REFERENCES


REFERENCES


Daversin-Catty:2021:AAA


Heltai:2021:PGI


Munch:2021:HDE


Ramachandran:2021:PPB


Peres:2021:ECT


