

# Carl D. Murray

## LIST OF PUBLICATIONS

### Scientific Papers:

1. "The long-term evolution of the Quadrantid meteor stream" by I.P. Williams, C.D. Murray and D.W. Hughes. *Mon. Not. R. astr. Soc.* **189**, 483–492 (1979).
2. "The orbital evolution of the Quadrantid meteor stream between AD 1830 and 2030" by D.W. Hughes, I.P. Williams and C.D. Murray. *Mon. Not. R. astr. Soc.* **189**, 493–500 (1979).
3. "The effect of orbital evolution on the influx of Quadrantid meteoroids" by C.D. Murray, D.W. Hughes and I.P. Williams. *Mon. Not. R. astr. Soc.* **190**, 733–742 (1980).
4. "The Quadrantid meteor stream: past, present and future" by D.W. Hughes, I.P. Williams and C.D. Murray. In *Solid Particles in the Solar System* (I. Halliday and B.A. McIntosh, Eds) 153–156 (Reidel, 1980).
5. "The narrow rings of Jupiter, Saturn and Uranus" by S.F. Dermott, C.D. Murray and A.T. Sinclair. *Nature* **284**, 309–313 (1980).
6. "Origin of the eccentricity gradient and apse alignment of the  $\epsilon$  ring of Uranus" by S.F. Dermott and C.D. Murray. *Icarus* **43**, 338–349 (1980).
7. "Resonant structure of the asteroid belt" by S.F. Dermott and C.D. Murray. *Nature* **290**, 664–668 (1981).
8. "The dynamics of tadpole and horseshoe orbits. I. Theory" by S.F. Dermott and C.D. Murray. *Icarus* **48**, 1–11 (1981).
9. "The dynamics of tadpole and horseshoe orbits. II. The coorbital satellites of Saturn" by S.F. Dermott and C.D. Murray. *Icarus* **48**, 12–22 (1981).
10. "Nodal regression of the Quadrantid meteor stream: An analytic approach" by C.D. Murray. *Icarus* **49**, 125–134 (1981).
11. "Asteroid rotation rates depend on diameter and type" by S.F. Dermott and C.D. Murray. *Nature* **296**, 418–421 (1982).
12. "The structure of the asteroid belt" by S.F. Dermott and C.D. Murray. *News Lett. Astron. Soc. N.Y.* **2**, 15–24 (1982).
13. "Nature of the Kirkwood gaps in the asteroid belt" by S.F. Dermott and C.D. Murray. *Nature* **301**, 201–205 (1983).
14. "Asteroid rotation rates" by S.F. Dermott, A.W. Harris and C.D. Murray. *Icarus* **57**, 14–34 (1984).

15. "Structure of the 3:1 jovian resonance: A comparison of numerical methods" by C.D. Murray and K. Fox. *Icarus* **59**, 221–233 (1984).
16. "Distribution and evolution of asteroid rotation rates" by S.F. Dermott and C.D. Murray. *Phil. Trans. R. Soc. London A* **313**, 157–164 (1984).
17. "The asteroid ring" by S.F. Dermott and C.D. Murray. In *Planetary Rings* (A. Brahic, Ed.) 695–701 (Cepadues, 1984).
18. "Variation of the UBV colors of S-class asteroids with semimajor axis and diameter" by S.F. Dermott, J. Gradie and C.D. Murray. *Icarus* **62**, 289–297 (1985).
19. "A note on Le Verrier's expansion of the disturbing function" by C.D. Murray. *Celest. Mech.* **36**, 163–164 (1985).
20. "The Hilda group and the Hecuba gap" by A. Milani, C.D. Murray and A.M. Nobili. In *Asteroids, Comets, Meteors II* (C.-I. Lagerkvist and H. Rickman, Eds) 147–151 (Uppsala University Press, Uppsala, 1986).
21. "The structure of the 2:1 and 3:2 jovian resonances" by C.D. Murray. *Icarus* **65**, 70–82 (1986).
22. "The reducing transformation and apocentric librators" by J. Henrard, A. Lemaitre, A. Milani and C.D. Murray. *Celest. Mech.* **38**, 335–344 (1986).
23. "Dynamics of the uranian and saturnian satellite systems: A chaotic route to melting Miranda?" by S.F. Dermott, R. Malhotra and C.D. Murray. *Icarus* **76**, 295–334 (1988).
24. "Project LONGSTOP" by A.E. Roy, I.W. Walker, A.J. McDonald, I.P. Williams, K. Fox, C.D. Murray, A. Milani, A.M. Nobili, P.J. Message, A.T. Sinclair and M. Carpino. *Vistas in Astron.* **32**, 225–234 (1988).
25. "The dust rings of Uranus: A picture is worth a million words" by C.D. Murray and R.P. Thompson. *Vistas in Astron.* **32**, 225–234 (1988).
26. "Secular perturbations of the uranian satellites: Theory and practice" by R. Malhotra, K. Fox, C.D. Murray and P.D. Nicholson. *Astron. & Astrophys.* **221**, 348–358 (1989).
27. "Structure of the uranian rings" by C.D. Murray and R.P. Thompson. In *Dynamics of Astrophysical Disks* (J. Sellwood, Ed) 17–18 (Cambridge University Press, 1989).
28. "Astrometric observations of Neptune and Triton obtained in 1988 and comparison with theory" by D.B. Taylor, D.H.P. Jones, L.V. Morrison, C.D. Murray and I.P. Williams. *Astron. & Astrophys.* **232**, 565–569 (1990).
29. "Orbits of shepherd satellites deduced from the structure of the rings of Uranus" by C.D. Murray and R.P. Thompson. *Nature* **348**, 499–502 (1990).
30. "Erratum: Orbits of shepherd satellites deduced from the structure of the rings of Uranus" by C.D. Murray and R.P. Thompson. *Nature* **350**, 90 (1991).

31. "The effect of data compression on ring images" by C.D. Murray. Report to the Cassini Imaging Team, June 1991.
32. "Expansion of the planetary disturbing function to eighth order in the individual orbital elements" by C.D. Murray and D. Harper (pp vii+436). *QMW Maths Notes*, No.15, (1993).
33. "Preliminary analysis of CCD observations of Saturn's satellites" by K. Beurle, D. Harper, D.H.P. Jones, C.D. Murray, D.B. Taylor and I.P. Williams. *Astron. Astrophys.* **269**, 564–567 (1993).
34. "Orbits of narrow rings and small satellites" by C.D. Murray. Report presented to Cassini Imaging Team Rings Working Group, September 1993.
35. "Atlas of the planar, circular, restricted three-body problem. I. Internal orbits" by O.C. Winter and C.D. Murray. (pp 397). *QMW Maths Notes*, No.16, (1994).
36. "Atlas of the planar, circular, restricted three-body problem. II. External orbits" by O.C. Winter and C.D. Murray. (pp 419). *QMW Maths Notes*, No.17, (1994).
37. "Planetary ring dynamics" by C.D. Murray. *Phil. Trans. R. Soc. A.*, **349**, 335–344 (1994).
38. "The dynamical effects of drag in the circular restricted three-body problem: I. The location and stability of the Lagrangian equilibrium points" by C.D. Murray. *Icarus* **112**, 465–484 (1994).
39. "Disturbing function expansions" by D. Harper and C.D. Murray. *Maple Technical Newsletter*, Special issue, December 1994, 24–28. (1994).
40. "Project CRISS-CROSS: A preliminary analysis" by O.C. Winter and C.D. Murray. In *From Newton to Chaos: Modern Techniques for Understanding and Coping with Chaos in N-Body Dynamical Systems* (A.E. Roy and B.A. Steves, Eds) Plenum, New York (1995).
41. "Possible satellites of Saturn" by M.K. Gordon, C.D. Murray and K. Beurle. *IAU Circular 6162* (1995).
42. "The martian atmosphere as a meteoroid detector" by L. Adolfsson, B. Gustafson and C.D. Murray. *Icarus* **119**, 144–152 (1996).
43. "Material in tadpole and horseshoe orbits in the saturnian system" by C.D. Murray and M.K. Gordon. Report presented to the *Cassini Ring Hazard Workshop*, NASA Ames, January 26, 1996.
44. "Periodic collisions between the moon Prometheus and Saturn's F ring" by C.D. Murray and S.M. Giuliatti Winter. *Nature* **380**, 139–141 (1996).
45. "Real and imaginary Kirkwood gaps" by C.D. Murray. *Mon. Not. R. astr. Soc.* **279**, 978–986 (1996).

46. "Further evidence for the existence of additional small satellites of Saturn" by M.K. Gordon, C.D. Murray and K. Beurle. *Icarus* **121**, 114–125 (1996).
47. "Overlap of ORS ring requirements in Cassini tours" by C.D. Murray. Report presented to Cassini ISS Rings Working Group, LPL, 21 October 1996.
48. "The Liapunov exponent as a tool for exploring phase space" by O.C. Winter and C.D. Murray. In *Chaos in Gravitational N-Body Systems* (J. Muzzio, S. Ferraz-Mello & J. Henrard, Eds.), 215–219. Kluwer, Dordrecht (1996).
49. "CCD astrometry of Saturn's satellites 1990–1994" by D. Harper, C.D. Murray, K. Beurle, I.P. Williams, D.H.P. Jones, D.B. Taylor and S.C. Greaves. *Astron. Astrophys. Suppl. Ser.* **121**, 65–69 (1997).
50. "Cassini ISS calibration analysis: NAC FM and WAC FM" by K. Beurle and C.D. Murray. Report presented to Cassini ISS, 1 February, 1997.
51. "Resonance and chaos. I. First order interior resonances" by O.C. Winter and C.D. Murray. *Astron. Astrophys.* **319**, 290–304 (1997).
52. "A second order Laplace-Lagrange theory applied to the uranian satellite system" by A.A.Christou and C.D. Murray. *Astron. Astrophys.* **327**, 416–427 (1997).
53. "Unraveling the strands of Saturn's F ring" by C.D. Murray, M.K. Gordon and S.M. Giuliatti Winter. *Icarus* **129**, 304–316 (1997).
54. "Resonance and chaos. II. Exterior resonances and asymmetric libration" by O.C. Winter and C.D. Murray. *Astron. Astrophys.* **328**, 399–408 (1997).
55. "OSIRIS – The optical, spectroscopic, and infrared remote imaging system for the Rosetta orbiter" by N. Thomas, H.U. Keller, E. Arijs, C. Barbieri, M. Grande, P. Lamy, H. Rickman, R. Rodrigo, K.-P. Wenzel, M.F. A'Hearn, F. Angrilli, M. Bailey, M.A. Barucci, J.-L. Bertraux, K. Brieß, J.A. Burns, G. Cremonese, W. Curdt, H. Deceuninck, R. Emery, M. Festou, M. Fulle, W.-H. Ip, L. Jorda, A. Korth, D. Koschny, J.-R. Kramm, E. Kührt, A. Llebaria, F. Marzari, C. Muller, C. Murray, G. Naletto, D. Nevejans, J.-P. Sivan and G. Tondello. *Adv. Space Res.* **21**, 1505–1515 (1998)
56. "The effect of near resonances on the secular precession of close orbits" by A.A. Christou and C.D. Murray. *Mon. Not. R. astr. Soc.* **303**, 806–812 (1999).
57. "Natural and artificial satellites: Introduction" by C.D. Murray. In *Dynamics of Small Bodies in the Solar System: A Major Key to Solar System Studies* (B.A. Steves and A.E. Roy, Eds), 203–206. Kluwer, Dordrecht (1999).
58. "The dynamics of planetary rings and small satellites" by C.D. Murray. In *Dynamics of Small Bodies in the Solar System: A Major Key to Solar System Studies* (B.A. Steves and A.E. Roy, Eds), 233–256. Kluwer, Dordrecht (1999).
59. "Stability of perturbed coorbital satellites" by M.H.M. Morais and C.D. Murray. In *Dynamics of Small Bodies in the Solar System: A Major Key to Solar System Studies* (B.A. Steves and A.E. Roy, Eds), 277–282. Kluwer, Dordrecht (1999).

60. "Applications of a high order secular perturbation theory" by A.A. Christou and C.D. Murray. In *Dynamics of Small Bodies in the Solar System: A Major Key to Solar System Studies* (B.A. Steves and A.E. Roy, Eds), 289–294. Kluwer, Dordrecht (1999).
61. "CCD astrometry of Saturn's satellites in 1995 and 1997" by D. Harper, K. Beurle, I.P. Williams, C.D. Murray, D.B. Taylor, A. Fitzsimmons and I.M. Cartwright. *Astron. Astrophys.* **136**, 257–259 (1999).
62. "On the role of the Earth-Moon system in the stability of the inner solar system" by F. Namouni and C.D. Murray. *Astron. J.* **117**, 2561–2562 (1999).
63. "Coorbital dynamics at large eccentricity and inclination" by F. Namouni, A.A. Christou and C.D. Murray. *Phys. Rev. Lett.* **83**, 2506–2509 (1999).
64. "Analytical modelling of the uranian satellite system" by A.A. Christou and C.D. Murray. In *Planetary Systems: The Long View*, (L.M. Celnikier and J. Trần Thanh Vân, Eds), 167–169. Editions Frontières, France (1999).
65. "The effect of eccentricity and inclination on the motion near the Lagrangian points L4 and L5" by F. Namouni and C.D. Murray. *Celest. Mech. and Dyn. Astron.* **76**, 131–138 (2000).
66. "The disturbing function in solar system dynamics" by K. Ellis and C.D. Murray. *Icarus* **147**, 129–144 (2000).
67. "Perturbations to Saturn's F ring strands at their closest approach to Prometheus" by S.M. Giuliatti Winter, C.D. Murray and M.K. Gordon. *Planetary and Space Science* **48**, 817–827 (2000).
68. "The masses of the major satellites of Saturn" by D. Harper and C.D. Murray. Report presented to Cassini ISS team meeting, Queen Mary, 14 June 2001 and Cassini Project Science Group, Surfaces Working Group meeting, Oxford, 20 June 2001.
69. "Dynamics of the Solar System" by C.D. Murray. In *Solar and Extra-Solar Planetary Systems*. Proceedings of the EADN Astrophysics School XI (I.P. Williams and N. Thomas, Eds.), 91–152. Springer, Heidelberg (2001).
70. "Symplectic mappings of co-orbital motion in the restricted problem of three bodies" by Z. Sandor, B. Erdi and C.D. Murray. *Celest. Mech.* **84**, 355–368 (2002).
71. "Origin and evolution of Trojan asteroids" by F. Marzari, H. Scholl, C.D. Murray and C. Lagerkvist. In *Asteroids III* (W. Bottke, A. Cellino, P. Paolicchi, R. Binzel, Eds.) University of Arizona Press, Tucson (2002).
72. "Saturn's rings: Pre-Cassini status and mission goals" by J.N. Cuzzi, J.E. Colwell, L.W. Esposito, C.C. Porco, C.D. Murray, P.D. Nicholson, L.J. Spilker, E.A. Marouf, R.G. French, N. Rappaport, Muhleman, D. *Sp. Sci. Rev.* **104**, 209–251 (2002).
73. "Planetary Rings" by Gordon, M. K., Araki, S., Black, G. J., Bosh, A. S., Brahic, A., Brooks, S. M., Charnoz, S., Colwell, J. E., Cuzzi, J. N., Dones, L., Durisen, R. H.,

- Esposito, L. W., Ferrari, C., Festou, M., French, R. G., Giuliatti-Winter, S. M., Graps, A. L., Hamilton, D. P., Horanyi, M., Karjalainen, R. M., Krivov, A. V., Krueger, H., Larson, S. M., Levison, H. F., Lewis, M. C., Lissauer, J. J., Murray, C. D., Namouni, F., Nicholson, P. D., Olkin, C. B., Poulet, F., Rappaport, N. J., Salo, H. J.; Schmidt, J., Showalter, M. R., Spahn, F., Spilker, L. J., Srama, R., Stewart, G. R., Yanamandra-Fisher, P. In *The Future of Solar System Exploration (2003-2013) -- Community Contributions to the NRC Solar System Exploration Decadal Survey*. ASP Conference Proceedings, **272**, 263–282. (Mark V. Sykes, Ed.) San Francisco, Astronomical Society of the Pacific (2002).
74. “The D-CIXS X-ray spectrometer, and its capabilities for lunar science” by Grande, M., Dunkin, S., Heather, D., Kellett, B., Perry, C. H., Browning, R., Waltham, N., Parker, D., Kent, B., Swinyard, B., Feraday, J., Howe, C., Huovelin, J., Muhli, P., Hakala, P. J., Vilhu, O., Thomas, N., Hughes, D., Alleyne, H., Grady, M., Russell, S., Lundin, R., Barabash, S., Baker, D., Clark, P. E., Murray, C. D., Christou, A., Guest, J., Casanova, I., D’Uston, L. C., Maurice, S., Foing, B., Kato, M. *Advances in Space Research*, **30**, 1901–1907 (2002).
75. “Cassini imaging of Jupiter’s atmosphere, satellites and rings” by C.C. Porco, R.A. West, A. McEwen, A.D. Del Genio, A.P. Ingersoll, P. Thomas, S. Squyres, L. Dones, C.D. Murray, T.V. Johnson, J.A. Burns, A. Brahic, G. Neukum, J. Veverka, J.M. Barbara, T. Denk, M. Evans, J.J. Ferrier, P. Geissler, P. Helfenstein, T. Roatsch, H. Throop, M. Tiscareno, A. Vasavada. *Science* **299**, 1541–1547 (2003).
76. “The D-CIXS X-ray mapping spectrometer on SMART-1” by Grande, M., Browning, R., Waltham, N., Parker, D., Dunkin, S. K.; Kent, B., Kellett, B., Perry, C. H., Swinyard, B., Perry, A., Feraday, J., Howe, C., McBride, G., Phillips, K., Huovelin, J., Muhli, P., Hakala, P. J., Vilhu, O., Laukkanen, J., Thomas, N., Hughes, D., Alleyne, H., Grady, M., Lundin, R., Barabash, S., Baker, D., Clark, P. E., Murray, C. D., Guest, J., Casanova, I., D’Uston, L. C., Maurice, S., Foing, B., Heather, D. J., Fernandes, V.; Muinonen, K., Russell, S. S., Christou, A., Owen, C., Charles, P., Koskinen, H., Kato, M., Sipila, K., Nenonen, S., Holmstrom, M., Bhandari, N., Elphic, R., Lawrence, D. *Planetary and Space Science*, **51**, 427–433 (2003).
77. “Scientific rationale for the D-CIXS X-ray spectrometer on board ESA's SMART-1 mission to the Moon” by Dunkin, S. K., Grande, M., Casanova, I., Fernandes, V., Heather, D. J., Kellett, B., Muinonen, K., Russell, S. S., Browning, R., Waltham, N., Parker, D., Kent, B., Perry, C. H., Swinyard, B., Perry, A., Feraday, J., Howe, C., Phillips, K., McBride, G., Huovelin, J., Muhli, P., Hakala, P. J., Vilhu, O., Thomas, N., Hughes, D., Alleyne, H., Grady, M., Lundin, R., Barabash, S., Baker, D., Clark, P. E., Murray, C. D., Guest, J., D’Uston, L. C., Maurice, S., Foing, B., Christou, A., Owen, C., Charles, P., Laukkanen, J., Koskinen, H., Kato, M., Sipila, K., Nenonen, S., Holmstrom, M., Bhandari, N., Elphic, R., Lawrence, D. *Planetary and Space Science*, **51**, 435–442 (2003).
78. “A dissipative mapping technique for the  $N$ -body problem incorporating radiation pressure, Poynting-Robertson drag and solar-wind drag” by T.J.J. Kehoe, C.D. Murray and C.C. Porco. *Astron. J.* **126**, 3108–3121 (2003).
79. “Dynamical influences on the orbits of Prometheus and Pandora” by N. Cooper and C.D. Murray. *Astron. J.* **127**, 1204–1217 (2004).
80. “Cassini imaging science: Instrument characteristics and anticipated scientific investigations at Saturn” by C.C. Porco, R.A. West, S. Squyres, A. McEwen, P. Thomas, C.D. Murray, A. Delgenio, A.P. Ingersoll, T.V. Johnson, G. Neukum, J. Veverka, L. Dones, A. Brahic, J.A. Burns, V. Haemmerle, B. Knowles, D. Dawson,

- T. Roatsch, K. Beurle, W.Owen. *Space Sci.Rev.* **115**, 363–497 (2004).
80. “Cassini Imaging Science: Initial Results on Saturn's Rings and Small Satellites” by C.C. Porco, E. Baker, J. Barbara, K. Beurle, A. Brahic, J.A. Burns, S. Charnoz, N. Cooper, D.D. Dawson, A.D. Del Genio, T. Denk, L. Dones, U. Dyudina, M.W. Evans, B. Giese, K. Grazier, P. Helfenstein, A.P. Ingersoll, R.A. Jacobson, T.V. Johnson, A. McEwen, C.D. Murray, G. Neukum, W.M. Owen, J. Perry, T. Roatsch, J. Spitale, S. Squyres, P. Thomas, M. Tiscareno, E. Turtle, A.R. Vasavada, J. Veverka, R. Wagner, R. West. *Science* **307**, 1226–1236 (2005).
  81. “Cassini Imaging Science: Initial Results on Phoebe and Iapetus” by C.C. Porco, E. Baker, J. Barbara, K. Beurle, A. Brahic, J.A. Burns, S. Charnoz, N. Cooper, D.D. Dawson, A.D. Del Genio, T. Denk, L. Dones, U. Dyudina, M.W. Evans, B. Giese, K. Grazier, P. Helfenstein, A.P. Ingersoll, R.A. Jacobson, T.V. Johnson, A. McEwen, C.D. Murray, G. Neukum, W.M. Owen, J. Perry, T. Roatsch, J. Spitale, S. Squyres, P. Thomas, M. Tiscareno, E. Turtle, A.R. Vasavada, J. Veverka, R. Wagner, R. West. *Science* **307**, 1237–1242 (2005).
  82. “Cassini Imaging Science: Initial Results on Saturn's Atmosphere” by C.C. Porco, E. Baker, J. Barbara, K. Beurle, A. Brahic, J.A. Burns, S. Charnoz, N. Cooper, D.D. Dawson, A.D. Del Genio, T. Denk, L. Dones, U. Dyudina, M.W. Evans, B. Giese, K. Grazier, P. Helfenstein, A.P. Ingersoll, R.A. Jacobson, T.V. Johnson, A. McEwen, C.D. Murray, G. Neukum, W.M. Owen, J. Perry, T. Roatsch, J. Spitale, S. Squyres, P. Thomas, M. Tiscareno, E. Turtle, A.R. Vasavada, J. Veverka, R. Wagner, R. West. *Science* **307**, 1243–1247 (2005).
  83. “Imaging of Titan from the Cassini spacecraft” by C.C. Porco, E. Baker, J. Barbara, K. Beurle, A. Brahic, J.A. Burns, S. Charnoz, N. Cooper, D.D. Dawson, A.D. Del Genio, T. Denk, L. Dones, U. Dyudina, M.W. Evans, S. Fussner, B. Giese, K. Grazier, P. Helfenstein, A.P. Ingersoll, R.A. Jacobson, T.V. Johnson, A. McEwen, C.D. Murray, G. Neukum, W.M. Owen, J. Perry, T. Roatsch, J. Spitale, S. Squyres, P. Thomas, M. Tiscareno, E.P. Turtle, A.R. Vasavada, J. Veverka, R. Wagner, R. West. *Nature* **434**, 159–168 (2005).
  84. “S/2004 S5: A New Co-orbital Companion for Dione” by C.D. Murray, N. Cooper, M.W. Evans, K. Beurle. *Icarus* **179**, 222-234 (2005).
  85. “How Prometheus creates structure in Saturn’s F ring” by C.D. Murray, C. Chavez, K. Beurle, N. Cooper, M.W. Evans, J.A. Burns and C.C. Porco. *Nature* **437**, 1326–1329 (2005).
  86. “Cassini observes the active south pole of Enceladus” by C.C. Porco, P. Helfenstein, P.C. Thomas, A.P. Ingersoll, J. Wisdom, R. West, G. Neukum, T. Denk, R. Wagner, T. Roatsch, S. Kieffer, E. Turtle, A. McEwen, T.V. Johnson, J. Rathbun, J. Veverka, D. Wilson, J. Perry, J. Spitale, A. Brahic, J.A. Burns, A.D. DelGenio, L. Dones, C.D. Murray, S. Squyres. *Science* **311**, 1393–1401 (2006).
  87. “100-metre diameter moonlets in Saturn’s A ring from observations of ‘propeller’ structures” by M.S. Tiscareno, J.A. Burns, M.M. Hedman, C.C. Porco, J.W. Weiss, L. Dones, D.C. Richardson, C.D. Murray. *Nature* **440**, 648–650 (2006).

87. “Cassini ISS astrometric observations of the inner jovian satellites, Thebe and Amalthea” by N. Cooper, C.D. Murray, C.C. Porco and J.N. Spitale. *Icarus* **181**, 223–234 (2006).
88. “The D-CIXS X-ray spectrometer on the SMART-1 mission to the Moon – First results” by M. Grande, B.J. Kellett, C. Howe, C.H. Perry, B. Swinyard, S. Dunkin, J. Huovelin, L. Alha, L.C. D’Uston, S. Maurice, O. Gasnault, S. Couturier-Doux, S. Barabash, K.H. Joy, I.A. Crawford, D. Lawrence, V. Fernandes, I. Casanova, M. Wieczorek, N. Thomas, U. Mall, B. Foing, D. Hughes, H. Alleyne, S. Russell, M. Grady, R. Lundin, D. Baker, C.D. Murray, J. Guest, A. Christou. *Planetary and Space Science*, **55**, 494–502 (2007).
89. “Revised orbits of Saturn’s small inner satellites” by R. A. Jacobson, J. Spitale, C. C. Porco, K. Beurle, N. Cooper, M. W. Evans & C.D. Murray. *Astron. J.* **135**, 261–263 (2008).
90. “Astrometry and dynamics of Anthe (S2007 S 4), a new satellite of Saturn” by N. J. Cooper, C. D. Murray, M. W. Evans, K. Beurle and R. A. Jacobson. *Icarus* **195**, 765–777 (2008).
91. “The determination of the structure of Saturn’s F ring by nearby moonlets” by C.D. Murray, K. Beurle, N. J. Cooper, M. W. Evans, G. A. Williams & S. Charnoz. *Nature*, **453**, 739–744 (2008).
92. “Three tenuous rings/arcs for three tiny moons” by M.W. Hedman, C.D. Murray, N.J. Cooper, M.S. Tiscareno, K. Beurle, M.W. Evans, & J.A. Burns. *Icarus* **199**, 378–386 (2009).
93. “Kronos: exploring the depths of Saturn with probes and remote sensing through an international mission” by B. Marty, T. Guillot, A. Coustenis, N. Achilleos, Y. Alibert, S. Asmar, D. Atkinson, S. Atreya, G. Babasides, K. Baines, T. Balint, D. Banfield, S. Barber, B. Bézard, G. L. Bjoraker, M. Blanc, S. Bolton, N. Chanover, S. Charnoz, E. Chassefiere, J. E. Colwell, E. Deangelis, M. Dougherty, P. Drossart, F. M. Flasar, T. Fouchet, R. Frampton, I. Franchi, D. Gautier, L. Gurvits, R. Hueso, B. Kazeminejad, T. Krimigis, A. Jambon, G. Jones, Y. Langevin, M. Leese, E. Lellouch, J. Lunine, A. Milillo, P. Mahaffy, B. Mauk, A. Morse, M. Moreira, X. Moussas, C. Murray, I. Mueller-Wodarg, T. C. Owen, S. Pogrebenko, R. Prangé, P. Read, A. Sanchez-Lavega, P. Sarda, D. Stam, G. Tinetti, P. Zarka, J. Zarnecki. *Exp. Astron.* **23**, 947–976 (2009).
94. “The structure of Saturn’s rings” by J. E. Colwell, P. D. Nicholson, M. S. Tiscareno, C. D. Murray, R. G. French & E. A. Marouf. In *Saturn from Cassini-Huygens* (M. K. Dougherty, L. W. Esposito & S. M. Krimigis, Eds.) Springer, Berlin (2009).
95. “An evolving view of Saturn’s dynamic rings” by J. N. Cuzzi, J. A. Burns, S. Charnoz, R. N. Clark, J. E. Colwell, L. Dones, L. W. Esposito, G. Filacchione, R. G. French, M. M. Hedman, S. Kempf, E. A. Marouf, C. D. Murray, P. D. Nicholson, C. C. Porco, J. Schmidt, M. R. Showalter, L. J. Spilker, J. N. Spitale, R. Srama, M. Sremcevic, M. S. Tiscareno & J. Weiss. *Science* **327**, 1470–1475 (2010).
96. “Aegaeon (Saturn LIII), a G-ring object” by M.M. Hedman, N.J. Cooper, C.D. Murray, K. Beurle, M.W. Evans, M.S. Tiscareno, & J.A. Burns. *Icarus* **207**, 433–447 (2010).

97. "Direct evidence for gravitational instability and moonlet formation in Saturn's rings" by K. Beurle, C.D. Murray, G.A. Williams, M.W. Evans, N.J. Cooper & C.B. Agnor. *Astroph. J. Letters* **718**, L176–L180 (2010).
98. "Keplerian orbits and dynamics" by C. D. Murray and A. C. M. Correia. In *Exoplanets* (S. Seager, Ed.) Univ. Arizona Press, Tucson (2010).
99. "Stability of co-orbital ring material with applications to the Janus-Epimetheus system" by G. A. Williams and C. D. Murray. *Icarus* **212**, 275–293 (2011).
99. "The orbits of the inner jovian satellites Metis and Adrastea" by M.W. Evans, C.C. Porco, D.P. Hamilton and C.D. Murray. *Astron. J.* (submitted).

### Abstracts of Conference Contributions:

1. "Origin and stability of uranian and jovian rings" by S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **11**, 595–596 (1979).
2. "Dynamics of particle orbits for narrow eccentric rings maintained by small satellites" by S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **12**, 744–745 (1980).
3. "Origin of the eccentricity gradient and apse alignment of the  $\epsilon$  ring of Uranus" by C.D. Murray and S.F. Dermott. *Bull. Amer. Astr. Soc.* **12**, 745 (1980).
4. "Distribution of asteroids: orbital elements, types, rotational frequencies, diameters, albedos and colors" by S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **13**, 744 (1981).
5. "The nature of the Kirkwood gaps in the asteroid belt" by S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **14**, 725–726 (1982).
6. "The dependence of the UVB colors of S-class asteroids on semimajor axis and diameter" by S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **15**, 827 (1983).
7. "Stability in the restricted three-body problem with drag" by C.D. Murray. In *Stability of the Solar System and Its Minor Natural and Artificial Bodies* (V. Szebehely, Ed.) 396 (Reidel, 1985).
8. "Structure of the 3:1 jovian resonance" by C.D. Murray and K. Fox. In *Stability of the Solar System and Its Minor Natural and Artificial Bodies* (V. Szebehely, Ed.) 397 (Reidel, 1985).
9. "Dynamical effects of drag on particles in corotational resonances" by C.D. Murray and S.F. Dermott. *Bull. Amer. Astr. Soc.* **18**, 778 (1986).
10. "Tidal heating of the uranian satellites" by R. Malhotra, S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **18**, 785 (1986).

11. "Secular perturbations of the uranian satellites: Theory and practice" by C.D. Murray, K. Fox, R. Malhotra and P.D. Nicholson. *Bull. Amer. Astr. Soc.* **19**, 820 (1987).
12. "A chaotic route to melting Miranda" by R. Malhotra, S.F. Dermott and C.D. Murray. *Bull. Amer. Astr. Soc.* **19**, 820 (1987).
13. "Tidal evolution of the uranian and saturnian satellite systems" by S.F. Dermott, R. Malhotra and C.D. Murray. *Bull. Amer. Astr. Soc.* **19**, 820 (1987).
14. "The dynamical structure of the rings of Uranus" by C.D. Murray and R.P. Thompson. *Bull. Amer. Astr. Soc.* **21**, 1015 (1989).
15. "Applications of high order expansions of the planetary disturbing function to asteroid dynamics" by C.D. Murray and D. Harper. *Bull. Amer. Astr. Soc.* **24**, 964 (1992).
16. "The structure of Saturn's F ring" by S. Giuliatti-Winter and C.D. Murray. *Bull. Amer. Astr. Soc.* **24**, 1035 (1992).
17. "Observational constraints on dynamical models of Saturn's F ring" by S. Guiliatti-Winter and C.D. Murray. *Bull. Amer. Astron. Soc.* **25**, 1072 (1993).
18. "Estimating the lifetime of the rings of Saturn from observations of the orbit of Prometheus" by C.D. Murray. *Bull. Amer. Astron. Soc.* **26**, 1142 (1994).
19. "Possible detection of additional small satellites of Saturn in Voyager images" by M.K. Gordon and C.D. Murray. *Bull. Amer. Astron. Soc.* **26**, 1160 (1994).
20. "Location and size of regular and chaotic regions in the main asteroid belt" by O.C. Winter and C.D. Murray. *Bull. Amer. Astron. Soc.* **27**, 1075 (1995).
21. "Color of the Saturn E ring" by S. Larson, C.D. Murray, D.H.P. Jones, M.K. Gordon, S.C. Greaves and O. Munoz. *Bull. Amer. Astron. Soc.* **27**, 1132 (1995).
22. "CCD imaging of the Saturn system immediately prior to the August ring plane crossing" by M.K. Gordon, S.C. Greaves, D.H.P. Jones, C.D. Murray, S.M. Larson and O. Munoz. *Bull. Amer. Astron. Soc.* **27**, 1132 (1995).
23. "Prometheus perturbing a massive F ring" by S. Giuliatti Winter and C.D. Murray. *Bull. Amer. Astron. Soc.* **27**, 1138 (1995).
24. "Resonant structure of the Themis asteroid family" by T.J.J. Kehoe and C.D. Murray. *Bull. Amer. Astron. Soc.* **28**, 1097 (1996).
25. "Analysis of the radial structure of Saturn's F ring" by M.K. Gordon and C.D. Murray. *Bull. Amer. Astron. Soc.* **28**, 1125 (1996).
26. "Possible configurations of the F ring after meeting Prometheus" by S. Giuliatti Winter and C.D. Murray. *Bull. Amer. Astron. Soc.* **30**, 1451 (1998).
27. "D-CIXS: Lunar investigation using the Compact X-Ray Spectrometer on SMART-1" by M. Grande, R. Browning, N. Waltham, B. Kent, B. Kellett, C.H. Perry, B.

- Swinyard, K. Phillips, J. Huovenin, N. Thomas, S. Livi, B. Wilken, D. Hughes, H. Alleyne, M. Grady, R. Lundin, S. Barabash, D. Baker, C.D. Murray, J. Guest, S. Dunkin. *Bull. Amer. Astron. Soc.* **31**, 1083 (1999).
28. "Perturbed Trojan satellites" by M.H.M. Morais and C.D. Murray. *Bull. Amer. Astron. Soc.* **31**, 1094 (1999).
29. "The orbit of Prometheus at the Voyager epochs" by M.W. Evans, C.D. Murray and C.C. Porco. *Bull. Amer. Astron. Soc.* **31**, 1140 (1999).
30. "The orbits of Prometheus, Pandora and Atlas in 1980 and 1981" by C.D. Murray, M.W. Evans, C.C. Porco and M.R. Showalter. *Bull. Amer. Astron. Soc.* **32**, 1090 (2000).
31. "Decadal Survey: Planetary Rings Panel" by M.K. Gordon, J.N. Cuzzi, J.J. Lissauer, F. Poulet, A. Brahic, S. Charnoz, C. Ferrari, J.A. Burns, P.D. Nicholson, R.H. Durisen, N.J. Rappaport, L.J. Spilker, P. Yanamandra-Fisher, A.S. Bosh, C. Olkin, S.M. Larson, A.L. Graps, H. Krueger, G.J. Black, M. Festou, R. Karjalainen, H.J. Salo, C.D. Murray, M.R. Showalter, L. Dones, H.F. Levison, F. Namouni, S. Araki, M.C. Lewis, S. Brooks, J.E. Colwell, L.W. Esposito, M. Horanyi, G.R. Stewart, A. Krivov, J. Schmidt, F. Spahn, D.P. Hamilton, S. Giuliatti-Winter, R.G. French. *Bull. Amer. Astron. Soc.* **33**, 1057 (2001).
32. "Numerical simulations of the orbits of Prometheus and Pandora" by N.J. Cooper and C.D. Murray. *Bull. Amer. Astron. Soc.* **35**, 04.05 (2003).
33. "The Dynamics of Saturn's Satellites" by C.D. Murray. *Bull. Amer. Astron. Soc.* **36**, 9.01I (2004).
34. "Waves, Wisps, Wakes, Kinks and Other Ring Features Observed in the Cassini SOI Imaging Sequence" by C.C. Porco, L. Dones, J.N. Spitale, E. Baker, C.D. Murray, A. Brahic, J.A. Burns and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **36**, 7.01 (2004).
35. "New Structures Observed in Cassini SOI Images of Saturn's Main Rings" by E.J. Baker, C.C. Porco, J.N. Spitale, C.D. Murray and the Cassini Imaging Team. . *Bull. Amer. Astron. Soc.* **36**, 7.02 (2004).
36. "Cassini ISS observations of Saturn's F ring region" by C.D. Murray, J.A. Burns, K. Beurle, N. Cooper, M.W. Evans, C.C. Porco, L. Dones, A. Brahic, J. Spitale and the Cassini Imaging Team. . *Bull. Amer. Astron. Soc.* **36**, 7.03 (2004).
37. "Weak Waves and Wakes in Saturn's Rings: Observations by Cassini ISS" by J.A. Burns, M.S. Tiscareno, C.C. Porco, H. Dones, C.D. Murray and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **36**, 19.12 (2004).
38. "Faint Rings and Things According to Cassini" by M.M. Hedman, J.A. Burns, C.D. Murray, M.S. Tiscareno, J.N. Cuzzi, C.C. Porco, H. Dones, C. Ferrari. *Bull. Amer. Astron. Soc.* **36**, 19.13 (2004).

39. "Satellite search with Cassini" by S. Charnoz, J. Spitale, C.C. Porco, A. Brahic, L. Dones, J.A. Burns, C. Murray and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **36**, 24.07 (2004).
40. "Cassini ISS Satellite Orbit Results" by J.N. Spitale, R.A. Jacobson, C.C. Porco, W.M. Owen, S. Charnoz, C.D. Murray, A. Brahic, M.W. Evans, K. Beurle, N. Cooper and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **36**, 24.08 (2004).
41. "Astrometry and dynamics of Polydeuces, a new co-orbital satellite of Dione" by N.J. Cooper, C.D. Murray, K. Beurle, M.W. Evans and C.C. Porco. *Bull. Amer. Astron. Soc.* **37**, 36.04 (2005).
42. "Morphology, Movements and Models of Ringlets in Saturn's Encke Gap" by J.A. Burns, M.M. Hedman, M.S. Tiscareno, P.D. Nicholson, B.J. Streetman, J.E. Colwell, M.R. Showalter, C.D. Murray, J.N. Cuzzi, C.C. Porco and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **37**, 64.01 (2005).
43. "Wavy Edges and Other Disturbances in Saturn's Encke and Keeler Gaps" by M.S. Tiscareno, J.A. Burns, M.M. Hedman, H.J.N. Spitale, C.C. Porco, C.D. Murray and the Cassini Imaging Team. *Bull. Amer. Astron. Soc.* **37**, 64.01 (2005).
44. "Saturn's F ring and its retinue" by C.D. Murray, M.W. Evans, N. Cooper, K. Beurle, J.A. Burns, J. Spitale and C.C. Porco. *Bull. Amer. Astron. Soc.* **37**, 64.05 (2005).
45. "Saturn's F Ring: The role of Prometheus in the production of regular azimuthal structure" by C.E. Chavez, C.D. Murray, K. Beurle, N. Cooper, M.W. Evans, J.A. Burns and C.C. Porco. *Bull. Amer. Astron. Soc.* **37**, 64.06 (2005).
46. "Cassini ISS Observations of the Encke and Keeler Gaps in Saturn's Rings" by M.S. Tiscareno, M.M. Hedman, J.A. Burns, C.C. Porco, J.W. Weiss and C.D. Murray. *AGU Fall Meeting 2005*, abstract #P33B-0245 (2005)
47. "Satellite mean motion resonances in Saturn's Rings" by M.K. Gordon, C.D. Murray and M.R. Showalter. *Bull. Amer. Astron. Soc.* **38**, 42.03 (2006).
48. "Saturn's F ring: A Story Of A Core, Moonlets And Spirals" by S. Charnoz, J. A. Burns, K. Beurle, M. Evans, C. Murray and C. Porco. *Bull. Amer. Astron. Soc.* **39**, 10.07 (2007).
49. "Cassini scientist for a day" by M. W. Evans, C. D. Murray, E. Piazza and S. McConnell. *Bull. Amer. Astron. Soc.* **39**, 27.02 (2007).
50. "F ring objects and ring history" by C. D. Murray. American Geophysical Union, Fall Meeting, abstract #P53E-03 (2007).
51. "A trio of tiny moons with tenuous rings" by M.W. Hedman, C.D. Murray, N.J. Cooper, M.S. Tiscareno, K. Beurle, M.W. Evans, & J.A. Burns. *Bull. Amer. Astron. Soc.* **40**, 21.03 (2008).
52. "Rings research in the next decade" by M. S. Tiscareno, N. Albers, A. Brahic, S. M. Brooks, J. A. Burns, C. Chavez, J. E. Colwell, J. N. Cuzzi, I. de Pater, L. Dones, R. H. Durisen, G. Filacchione, S. M. Giuliatti Winter, M. K. Gordon, A. Graps, D. P.

Hamilton, M. M. Hedman, M. Horanyi, S. Kempf, H. Krueger, M. C. Lewis, J. J. Lissauer, C. D. Murray, P. D. Nicholson, C. B. Olkin, R. T. Pappalardo, H. Salo, J. Schmidt, M. R. Showalter, F. Spahn, L. J. Spilker, R. Srama, M. Sremcevic, G. R. Stewart, and P. Yanamandra-Fisher. *Bull. Amer. Astron. Soc.* **41**, 16.32 (2009).

53. "The shapes of the saturnian satellites Pallene, Methone, and Anthe" by M. Rehnberg, M.M. Hedman, J.A. Burns, M.S. Tiscareno, C.D. Murray, and M.W. Evans. *Bull. Amer. Astron. Soc.* **42**, 09.02 (2010).
54. "Evidence of accretion in Saturn's F ring" by C. B. Agnor, K. Beurle, C. D. Murray, M. W. Evans, N. J. Cooper and G. A. Williams. *AGU Fall Meeting 2010*, abstract #P33D-03 (2010).

### Articles:

1. "Chaotic spinning of Hyperion" by C.D. Murray. *Nature (News and Views)* **311**, 705 (1984).
2. "Earthward bound from chaotic regions of the asteroid belt" by C.D. Murray. *Nature (News and Views)* **315**, 712 (1985).
3. "Arcs around Neptune" by C.D. Murray. *Nature (News and Views)* **324**, 209 (1986).
4. "Divergent heavenly clockwork" by C.D. Murray. *Physics World* **2**, No.6 (1989).
5. "Neptune at last" by C.D. Murray. *Physics World* **2**, No.9 (1989).
6. "Avoiding the last resort" by C.D. Murray. *Physics World* **2**, No.11 (1989).
7. "Is the Solar System stable?" by C.D. Murray. *New Scientist* **124**, No.1692 (1989).
8. "Chaos in astronomy" by C.D. Murray. In *McGraw-Hill Encyclopaedia of Science and Technology, 7th Edition* (McGraw-Hill, 1990).
9. "Detecting the invisible" by C.D. Murray. *Nature (News and Views)* **345**, 668 (1990).
10. "Preparing for Cassini: Astronomers use NAIF/SPICE to improve ephemerides of Saturn satellites" by M. Gordon and C.D. Murray. *Information Systems Newsletter*, NASA Office of Space Science Applications, June 1992.
11. "Wandering on a leash" by C.D. Murray. *Nature (News and Views)* **357**, 542–543 (1992).
12. "The Cassini imaging science experiment" by C.D. Murray. *J. Brit. Interplanetary Soc.* **45**, 359–364 (1992).
13. "Analysis of CCD observations of Saturn's satellites" by D. Harper, D.B. Taylor, C.D. Murray, D.H.P. Jones, K. Beurle and I.P. Williams. *Gemini* **38**, 19–21 (1992).
14. "Seasoned travellers" by C.D. Murray. *Nature (News and Views)* **361**, 586–587 (1993).

15. "Rings old, new and borrowed" by C.D. Murray. *Nature (News and Views)* **366**, 212–213 (1993).
16. "Chaotic clockwork" by C.D. Murray. *Odyssey* **3**, No.2, 24–27 (1994).
17. "Saturn's edge of darkness" by C.D. Murray. *New Scientist* **146**, 29–33 (1995).
18. "Saturn's rings: Life at the edge" by C.D. Murray. *Science (Perspectives)* **272**, 507–508 (1996).
19. "Professor Carl Sagan (Obituary)" by C.D. Murray. *The Independent* No.3174, 21 December, p.12 (1996).
20. "The Earth's secret companion" by C.D. Murray. *Nature (News and Views)* **387**, 651–652 (1997).
21. "Shepherd satellites" by C.D. Murray. In *Encyclopedia of Planetary Sciences* (Shirley, J.H. & Fairbridge, R.W., Eds), Chapman & Hall, London (1997).
22. "Small satellites" by C.D. Murray. In *Encyclopedia of Planetary Sciences* (Shirley, J.H. & Fairbridge, R.W., Eds), Chapman & Hall, London (1997).
23. "Chaotic motion in the Solar System" by C.D. Murray. In *Encyclopedia of the Solar System* (Johnson, T, Weissman, P. & McFadden, L., Eds), Academic Press, Orlando (1998).
24. "Celestial Mechanics" by C.D. Murray. In *Encyclopedia of Astronomy and Astrophysics* (Murdin, P., Ed), Macmillan, London (2001).
25. "Migrating Moons" by C.D. Murray. *Astronomy Now*, February 2002, 76–78.
26. "Cassini-Huygens reaches the ringed planet" by C.D. Murray. *Frontiers*, No.20, Autumn 2004, 5.
27. "Ringing the Changes" by C.D. Murray. *Science (Perspectives)* **311**, 961–962 (2006).
28. "Solar System Dynamics: Regular and Chaotic Motion" by J. Lissauer & C.D. Murray. In *Encyclopedia of the Solar System (2<sup>nd</sup> Edition)* (McFadden, L., Weissman, P. & Johnson, T, Eds), Academic Press, Orlando (2006).
29. "Saturn's Dynamical Laboratory" by C.D. Murray. *Physics Today* **60**, 74–75 (2007).
30. "Perturbation (Astronomy)" by R. L. Duncombe and C.D. Murray. In *McGraw-Hill Encyclopaedia of Science and Technology, 11th Edition*, McGraw-Hill, New York (in press).

**Books:**

1. "*Solar System Dynamics*" by C.D. Murray and S.F. Dermott. (Cambridge University Press), Cambridge (1999).

**Videos:**

1. "*The Quantized Solar System*" by C.D. Murray. In "Cosmos, Quantum. The 50<sup>th</sup> Colston Symposium" (Eds. M. Berry, M. Birkinshaw and M. Springford.) Centre for Video Publishing, Bristol, 1999.

**Software:**

1. "Numerical Recipes (Acorn) Fortran Diskette" by C.D. Murray. (Cambridge University Press, 1988).
2. "Numerical Recipes (Acorn) Fortran Example Diskette" by C.D. Murray. (Cambridge University Press, 1988).