

Curriculum Vitae C S Pitcher

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1 Personal

Full Name: Dr. Charles Spencer Pitcher
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2 Background Summary

C S Pitcher's undergraduate training includes the broad curriculum of physics and engineering contained within the Engineering Science course at the University of Toronto. Doctoral and present experience is mainly within the area of plasmas and their interaction with material surfaces in the context of magnetic fusion experiments (DITE, TEXTOR, JET, TFTR, ASDEX-U, C-Mod). C S Pitcher is primarily an experimentalist but has done some theoretical modelling (70% experiment, 30% theory).

3 Education

High School: 1978, Georges Vanier Secondary School, Willowdale, Ontario,
Canada (Honours)
Bachelor Degree: 1982, Engineering Science, University of Toronto, Canada
(Honours)
Master's Degree: 1984, Institute for Aerospace Studies (UTIAS), University of
Toronto, Canada
Doctorate: 1987, Institute for Aerospace Studies (UTIAS), University of
Toronto, Canada

4 Scholarships/Awards

1978	Ontario Scholar (Secondary School)	G. Vanier S.S.
1978-79	Lachlan Dales McKellar	Univ. Toronto
1979-80	Garnet W. McKee-Lachlan Gilchrist	Univ. Toronto
1981	NSERC University Undergraduate	UTIAS
1982	Outstanding Undergradute	Can. Aero. Space Inst.
1982-86	NSERC Postgraduate I,II,III,IV	UTIAS
1986-87	University of Toronto Open	Univ. Toronto
1987	Patterson (Outstanding Grad. Research)	UTIAS
1988	NATO Postdoctoral Scholarship	Culham, U.K.
1992-1994	Adjunct Professorship	UTIAS

5 Theses/Reviews

Bachelor Degree:	1982, 'An Arc-Jet Atomic Hydrogen Source'
Master's Degree:	1984, 'Development of an Ultra-High Vacuum Compatible Atomic Hydrogen Beam Source'
Doctorate:	1987, 'Tokamak Plasma Interaction with Limiters'
Invited Review:	1997, 'Experimental Divertor Physics', see below

6 Experience

1980	Prometheus Inc.	solar energy research
1981	UTIAS	fusion plasma-material interaction simulation studies (supervisor: A A Haasz)
1982-84	UTIAS	fusion plasma-material interaction simulation studies (supervisors: A A Haasz and P C Stangeby)
1984-87	UKAEA Culham	plasma-surface interaction studies on the DITE tokamak (supervisors: P C Stangeby and G M McCracken)
1987-89	JET, KFA Jülich	plasma-surface interaction studies on the Joint European Torus (JET), Abingdon, U.K. and the TEXTOR Tokamak, KFA Julich, Fed. Rep. Germany (supervisor: G M McCracken)
1989-90	PPPL	task force leader on plasma-surface interaction studies on TFTR (supervisors: D M Manos, S A Cohen)
1990-94	UTIAS	data interpretation and modelling at UTIAS in collaboration with P C Stangeby, diagnostic support for TFTR and ASDEX-Upgrade.
1993-96	IPP	visiting scientist at Max-Planck-Institut für Plasmaphysik, Garching bei München, Germany
1996-	MIT	staff scientist at Plasma Science and Fusion Center, MIT, Cambridge, USA

7 Courses Attended

1. NATO Advanced Study Institute Summer School on the Physics of Plasma-Wall Interactions in Controlled Fusion, July/August 1984, Val-Morin, Quebec, Canada.
2. Surface Analysis for Engineers, short course on surface science held at Loughborough University, June 1985, Loughborough, UK.
3. Culham Laboratory Plasma Physics Summer School, July 1985, Culham, U.K.

4. International School of Plasma Physics ‘Piero Caldirola’, Basic and Advanced Diagnostic Techniques for Fusion Plasmas, Sept. 1986, Varenna, Italy.
5. International School of Plasma Physics ‘Piero Caldirola’, Physics of Alternative Magnetic Confinement Schemes, Oct. 1990, Varenna, Italy.

8 Review Panels

1. National Spherical Tokamak Experiment, Princeton Plasma Physics Lab, member of Physics Advisory Committee since 1998.
2. National Compact Stellarator Experiment, Princeton Plasma Physics Lab, member of Physics Validation Panel, March 2001.

9 Publications (with Pitcher as first author)

1. C S Pitcher, O Auciello, A A Haasz and P C Stangeby, ‘Interaction of a Sub-eV Atomic Hydrogen Beam with Carbon: Methane Production and Hydrogen Retention’, *Journal of Nuclear Materials*, 128/129 (1984), 597-600.
2. C S Pitcher, G M McCracken, D H J Goodall, A A Haasz, G F Matthews and P C Stangeby, ‘An Experimental Investigation of Chemical Sputtering of Carbon in a Tokamak Discharge’, *Nuclear Fusion*, 26 (1986), 1641-1653.
3. C S Pitcher, G E Austin, G M McCracken and P C Stangeby, ‘A Pyrolytic Graphite Resistive Heating Element’, *Journal of Vacuum Science and Technology*, A5 (1987), 383-384.
4. C S Pitcher, G M McCracken, P C Stangeby, J Allen, S J Fielding, D H J Goodall and G F Matthews, ‘The Toroidal Dispersal of Gas Puffed Impurities’, *Journal of Nuclear Materials*, 145-147 (1987), 539-543.
5. C S Pitcher, D H J Goodall, G F Matthews, G M McCracken and P C Stangeby, ‘Observations of Non-Ambipolar Flow to Limiters in the DITE Tokamak’, *Proceedings of the 14th European Conference on Controlled Fusion and Plasma Physics*, Madrid, June 1987, 11D II, 736-739.

6. C S Pitcher, 'A Review of Particle Fuelling and Recycling Processes in Magnetic Fusion Devices', *Vacuum Technology Applications and Ion Physics*, 38 (1988), 1059-1069.
7. C S Pitcher, G F Matthews, D H J Goodall, G M McCracken and P C Stangeby, 'A Theoretical Study of Impurity Production at Limiters in Tokamaks', *Contrib. Plasma Phys.* 28 (1988), 489-494.
8. C S Pitcher, P C Stangeby, D H J Goodall, G F Matthews and G M McCracken, 'Carbon Impurity Transport Around Limiters in the DITE Tokamak', *Journal of Nuclear Materials* 162-164 (1989), 337-342.
9. C S Pitcher and P C Stangeby, 'The Parallel Transport of Ions in a Magnetized Plasma', *Plasma Physics and Controlled Fusion* 31 (1989), 1305-1319.
10. C S Pitcher, G M McCracken, P C Stangeby and D D R Summers, 'Impurity Production and Transport at the JET Belt Limiter', *Proceedings of the 16th European Conference on Controlled Fusion and Plasma Physics*, Venice, March 1989, 13B III, 879-882.
11. C S Pitcher, S J Fielding, D H J Goodall, G F Matthews, G M McCracken and P C Stangeby, 'Impurity Production at Graphite Limiters in the DITE Tokamak', *Nuclear Fusion* 29 (1989) 1919-1938.
12. C S Pitcher, M Bures, L de Kock, S K Erents, N A Gottardi, G M McCracken, M F Stamp, P C Stangeby, D D R Summers and J A Tagle, 'Some Effects of ICRH Heating on the JET Boundary Plasma', *J Vac Sci Technol A*8(3) (1990) 1760.
13. C S Pitcher, 'A Model of Density Behaviour in Tokamaks with Carbon Limiters', *Fusion Engineering and Design* 12 (1990) 63.
14. C S Pitcher, H F Dylla et al, 'First-Wall Behavior in TFTR', *Proceedings of the 17th European Conference on Controlled Fusion and Plasma Physics*, Amsterdam, June 1990.
15. C S Pitcher, R V Budny, K W Hill, S J Kilpatrick, D M Manos, S S Medley and A T Ramsey, 'Power and Particle Balance During Neutral Beam Injection in TFTR', *proc of 9th PSI conference*, Bournemouth, UK, May 1990, *J Nucl Mat* 176/177 (1990) 285.

16. C S Pitcher, C E Bush, S J Kilpatrick, D M Manos, S S Medley, A T Ramsey, J Schivell and M Ulrickson, 'Power and Particle Balance During Carbon Blooms in TFTR Discharges', proc of the satellite workshop of the 9th PSI Conference, Cadarache, France, DRFC/CAD EUR-CEA-FC-1403 (1990) 21.
17. C S Pitcher, P C Stangeby, R V Budny, C E Bush, J D Elder, K W Hill, S J Kilpatrick, D M Manos, S S Medley, A T Ramsey, J F Schivell and M Ulrickson, 'The Effect of Density on Boundary Plasma Behaviour in TFTR', Proceedings of the 18th European Conference on Controlled Fusion and Plasma Physics, Berlin, June 1991, 15C III, 145.
18. C S Pitcher, P C Stangeby, R V Budny, C E Bush, J D Elder, S J Kilpatrick, D M Manos, S S Medley, A T Ramsey, J F Schivell and M Ulrickson, 'The Effect of the Boundary Plasma on TFTR Ohmic Discharges', Nucl. Fusion 32 (1992) 239.
19. C S Pitcher, P C Stangeby, M G Bell et al, 'Plasma Fluxes to Surfaces for an Oblique Magnetic Field', J Nucl Mat 196-198 (1992) 241.
20. C S Pitcher, H-S Bosch, A Carlson et al, 'First Results with the In-Vessel Probe on ASDEX-Upgrade', Proceedings of the 20th European Conference on Controlled Fusion and Plasma Physics, Lisbon, July 1993, I-291, 17C part I.
21. C S Pitcher, 'Plasma Flow to a Surface using the Iterative Monte Carlo Method', Plasma Physics and Controlled Fusion 36 (1994) 1647.
22. C S Pitcher, H-S Bosch, K Buchl et al, 'The Effect of Density on Divertor Conditions in ASDEX-Upgrade', J Nucl Mat 220 (1995) 213.
23. C S Pitcher, H-S Bosch, A Carlson et al, 'Scrape-Off Layer Power and Pressure Balance in Asdex-Upgrade', Proceedings of the 22th European Conference on Controlled Fusion and Plasma Physics, Bournemouth, July 1995, III-245.
24. C S Pitcher, A W Carlson, C Fuchs et al, 'Routes to Divertor Detachment in ASDEX Upgrade', J Nucl Mat 241-243 (1997) 696.
25. C S Pitcher, J A Goetz, B LaBombard and B Lipschultz, 'SOL Power and Pressure Balance in Alcator C-Mod', Proceedings of the 24th Eu-

ropean Conference on Controlled Fusion and Plasma Physics, Berchtesgaden, June 1997.

26. C S Pitcher and P C Stangeby, 'Experimental Divertor Physics', an invited review for *Plas Phys Contr Fusion* 39 (1997) 779-930.
27. C S Pitcher, A Herrmann, H Murmann et al, 'Heat Transport at the Boundary of ASDEX Upgrade', *Plasma Physics and Controlled Fusion* 39 (1997) 1129.
28. C S Pitcher, A H Boozer, H Murmann et al, 'The Relation of Edge Confinement to Global Confinement in ASDEX Upgrade', *Physics of Plasmas* 4 (1997) 2577.
29. C S Pitcher, J A Goetz, B LaBombard, B Lipschultz, J L Weaver and B L Welch, 'The Role of Friction in SOL Pressure Balance in Alcator C-Mod', *J Nucl Mat* 266-269 (1999) 1009.
30. C S Pitcher, J A Goetz, B LaBombard et al, Proceedings of the 26th European Conference on Controlled Fusion and Plasma Physics, Maastricht, June 1999
31. C S Pitcher, C J Boswell, T Chung et al, 'The Effect of Divertor Baffling on Alcator C-Mod Discharges', *Physics of Plasmas* 7 (2000) 1894.
32. C S Pitcher et al, 'The Effect of Baffling on Divertor Leakage in Alcator C-Mod', *J Nucl Mat* 290-293 (2001) 812.
33. C S Pitcher et al, 'Divertor Bypass in the Alcator C-Mod Tokamak', *Rev Sci Instru* 72 (2001) 103.
34. C S Pitcher et al, 'Main Chamber Neutral Pressure in Alcator C-Mod and JET', Proceedings of the 28th European Conference on Controlled Fusion and Plasma Physics, Madeira, June 2001

10 Publications (with Pitcher as co-author)

1. J Allen, ... C S Pitcher (DITE team), 'Density Limiter and Impurity Transport Investigations in DITE Tokamak', International Atomic Energy Agency Plasma Physics Conference, Kyoto (1986).

2. D H J Goodall, S J Fielding, C S Pitcher, J Allen and G M McCracken, 'A Study of the Spatial Distributions of Impurities in the Boundary Layer of DITE', *Journal of Nuclear Materials*, 145-147 (1987), 596-600.
3. G F Matthews, G M McCracken, P C Stangeby, C S Pitcher, P Sewell and D H J Goodall, 'The Optimisation of Limiter Geometry to Reduce Impurity Influx in Tokamaks', *Plasma Physics and Controlled Fusion*, 29 (1987), 189-203.
4. G M McCracken,... C S Pitcher (DITE team), 'A Study of Detached Plasmas in the DITE Tokamak', *Journal of Nuclear Materials*, 145-147 (1987), 181-185.
5. G F Matthews,... C S Pitcher (DITE team), 'The Impurity Control Limiter Experiment on DITE', *Proceedings of the 14th European Conference on Controlled Fusion and Plasma Physics*, Madrid, June 1987, 11D II, 762-765.
6. D H J Goodall, G F Matthews, G M McCracken, C S Pitcher and D A Hughes, 'The Thermal Performance of the Impurity Control Limiter Graphite Tiles in Simulation Experiments and in the DITE Tokamak', *Proceedings of the 14th European Conference on Controlled Fusion and Plasma Physics*, Madrid, June 1987, 11D II, 766-769.
7. G M McCracken, P C Stangeby and C S Pitcher, 'The Role of the Limiter as a Source and Sink for Impurities', *Contrib. Plasma Phys.* 28 (1988), 447-452.
8. G M McCracken, S J Fielding, G F Matthews and C S Pitcher, 'Impurity Production due to Wall Interactions in Tokamaks', *Journal of Nuclear Materials* 162-164 (1989) 392.
9. G F Matthews,... C S Pitcher (DITE team), 'The Impurity Control Limiter Experiment', *Nuclear Fusion* 28 (1988) 2209-2224.
10. G M McCracken,... C S Pitcher (DITE team), 'The Role of Limiters and Walls in Impurity Production', *International Atomic Energy Agency Plasma Physics Conference*, Nice (1988).
11. G M McCracken, P C Stangeby, D H J Goodall and C S Pitcher, 'Erosion and Deposition Processes in Tokamaks', presented to the 15th Symposium on Fusion Technology, Utrecht, September 1988, *Fus Eng and Design* 11 (1989) 151.

12. L deKock,... C S Pitcher (JET plasma boundary team), 'The Plasma Boundary in JET', International Atomic Energy Agency Plasma Physics Conference, Nice (1988).
13. G M McCracken, ... C S Pitcher..., 'Distribution of Erosion and Deposition on the JET Belt Limiters', Proceedings of the 16th European Conference on Controlled Fusion and Plasma Physics, Venice, March 1989, 13B III, 947.
14. S J Kilpatrick, C S Pitcher, M G Bell, D M Manos, D K Mansfield, I Nyberg, A T Ramsey and B C Stratton, 'The Effect of Plasma Density on the Behaviour of the Plasma Boundary in Helium Discharges in the Tokamak Fusion Test Reactor', J Vac Sci Technol A8 (1990) 1767.
15. H F Dylla, M G Bell, R J Hawryluk...C S Pitcher... et al, 'Effects of Boronization of the First Wall in TFTR', J Nucl Mat 176/177 (1990) 337.
16. G M McCracken, U Samm, S J Fielding ... C S Pitcher...et al, 'A Study of Impurity Transport in the Plasma Boundary of TEXTOR using Gas Puffing', J Nucl Mat 176/177 (1990) 191.
17. G M McCracken, ... C S Pitcher..., 'Formation of Detached Plasmas During High Power Discharges in JET', Proceedings of the 17th European Conference on Controlled Fusion and Plasma Physics, Amsterdam, June 1990.
18. G F Matthews, S J Fielding, G M McCracken, C S Pitcher, P C Stangeby and M Ulrickson, 'Investigation of the Fluxes to a Surface at Grazing Angles of Incidence in the Tokamak Boundary', Plasma Physics and Controlled Fusion 32 (1990) 1301.
19. S J Kilpatrick, C S Pitcher, H F Dylla, D M Manos, I Nyberg, A T Ramsey, B C Stratton, J Timberlake and M J Ulrickson, 'The Effect of Limiter Conditioning on the Tokamak Fusion Test Reactor Edge Plasma', J Vac Sci Technol A9 (1991) 742.
20. A T Ramsey, C E Bush, H F Dylla, D K Owens, C S Pitcher and M Ulrickson, 'Enhanced Carbon Influx into TFTR Supershots', Nuclear Fusion 31 (1991) 1811.
21. J Strachan, C S Pitcher.... 'Experiments on TFTR Supershot Plasmas', J Nucl Mat 196-198 (1992).

22. P C Stangeby, C S Pitcher and J D Elder, 'On the Nature of Plasma Fluxes to Surfaces Nearly Tangential to the Magnetic Field', Nuclear Fusion 32 (1992) 2079.
23. H-S Bosch, R Schneider, C S Pitcher et al, '2D Model Validation of ASDEX-Upgrade Scrape-Off Layer Plasmas', Proceedings of the 20th European Conference on Controlled Fusion and Plasma Physics, Lisbon, July 1993, II-795, 17C part II.
24. A Kallenbach, G Fussmann, K Kiemer, H-M Mayer, C S Pitcher, 'The Influence of Spatially and Temporally Varying Edge Conditions on the Interpretation of Spectroscopic Particle Flux Measurements', Proceedings of the 20th European Conference on Controlled Fusion and Plasma Physics, Lisbon, July 1993, II-571, 17C part II and Plasma Physics and Controlled Fusion 36 (1994) 1299.
25. M Kaufmann,...C S Pitcher and the ASDEX-Upgrade Team, 'Edge Physics and H-Mode Studies in ASDEX-Upgrade', Plasma Physics and Controlled Fusion 35 (1993) B205.
26. V Mertens,...C S Pitcher and the ASDEX-Upgrade Team, 'Experimental Investigation of MARFES and Density Limit on ASDEX-Upgrade', Plasma Physics and Controlled Fusion 36 (1994) 1307.
27. J W Davis, C S Pitcher and A A Haasz, 'Re-Emission of Deuterium from Graphite as a Function of D Flux Density', J Appl Phys 76 (1994) 4511.
28. W Junker, H-S Bosch, ...C S Pitcher..., 'Comparison of Experimental MARFE Observations in ASDEX-Upgrade with B2 Calculations', Proceedings of the 21th European Conference on Controlled Fusion and Plasma Physics, Montpellier, 1994.
29. G Lieder, ...C S Pitcher..., 'Spectroscopic Investigation of Molecular Impurities in the ASDEX-Upgrade Divertor', Proceedings of the 21th European Conference on Controlled Fusion and Plasma Physics, Montpellier, 1994.
30. M Kaufmann, K Lackner,...C S Pitcher..., 'Divertor Characteristics During High-Density H-Mode Discharges in ASDEX-Upgrade', 15th International Conf. on Plasma Physics and Controlled Nuclear Fusion Research, Seville, Spain (1994) IAEA-CN-60/A-4-I-1.

31. R J Hawryluk,...C S Pitcher..., 'Review of Recent D-T Experiments from TFTR', 15th International Conf. on Plasma Physics and Controlled Nuclear Fusion Research, Seville, Spain (1994) IAEA-CN-60/A1-1.
32. A A Haasz, P Franzen, J W Davis, S Chiu and C S Pitcher, 'Two-Region Model for Hydrogen Trapping In and Release from Graphite', J Appl Phys 77 (1995) 66.
33. K Krieger, H-S Bosch...C S Pitcher..., 'Modelling of Impurities in the ASDEX-Upgrade Divertor with DIVIMP', J Nucl Mat 220 (1995) 548.
34. H-S Bosch, J Neuhauser...C S Pitcher..., '2D Modelling of the ASDEX-Upgrade Scrape-Off Layer and Divertor Plasma', J Nucl Mat 220 (1995) 558.
35. A R Field, G Fussmann,...C S Pitcher..., 'Studies of Divertor Target Plate Erosion in the ASDEX-Upgrade Tokamak', J Nucl Mat 220 (1995) 553.
36. B Terreault, G Abel,...C S Pitcher..., 'Effect of Lithium Wall Conditioning on Deuterium In-Vessel Retention in the TdeV Tokamak', J Nucl Mat 220 (1995) 1130.
37. D K Owens, H Adler,...C S Pitcher..., 'Plasma-Surface Interactions in TFTR DT Experiments', J Nucl Mat 220 (1995) 63.
38. M G Bell, K M McGuire,...C S Pitcher..., 'Overview of DT Results from TFTR', Nuclear Fusion 35 (1995) 1429.
39. O Gruber, A Kallenbach,...C S Pitcher..., 'Observations of Continuous Divertor Detachment in H-Mode Discharges in ASDEX-Upgrade', Phys Rev Lett 74 (1995) 4217.
40. J Neuhauser,...C S Pitcher..., 'The Compatibility of High Confinement Times and Complete Divertor Detachment in ASDEX-Upgrade', Plas Phys Control Fusion 37 (1995) A37.
41. K M McGuire, H Adler,...C S Pitcher..., 'Review of Deuterium-Tritium Results from the Tokamak Fusion Test Reactor', Phys of Plasmas 2 (1995) 2176.

42. A R Field, C Garcia-Rosales, G Lieder, C S Pitcher and R Radtke, 'Spectroscopic Measurement of Target Plate Erosion in the ASDEX-Upgrade Divertor', Nucl Fusion 36 (1996) 119.
43. M G Bell, C W Barnes,...C S Pitcher..., 'Fusion Power Production in TFTR', 15th International Conf. on Plasma Physics and Controlled Nuclear Fusion Research, Seville, Spain (1994) vol 1, p 171.
44. G Lieder, ...C S Pitcher..., 'Spectroscopic Determination of Ion Temperatures in the Divertor of ASDEX-Upgrade', Proceedings of the 22th European Conference on Controlled Fusion and Plasma Physics, Bournemouth, July 1995, III-409.
45. M Laux, ...C S Pitcher..., 'Effects of Toroidal Field Reversal in ASDEX-Upgrade', Proceedings of the 22th European Conference on Controlled Fusion and Plasma Physics, Bournemouth, July 1995, III-097.
46. K Krieger, ...C S Pitcher..., 'Boron Erosion and Transport in the ASDEX-Upgrade Divertor', Proceedings of the 22th European Conference on Controlled Fusion and Plasma Physics, Bournemouth, July 1995, II-289.
47. H W Herrmann....C S Pitcher..., 'Foil Deposition Alpha Collector Probe for TFTR's D-T Phase', Rev Sci Instr 66 (1995) 351.
48. G P Maddison, P C Stangeby and C S Pitcher, Int Workshop on Theory of Fusion Plasmas (Varenna, August 1996)
49. N L Bretz, H Adler,...C S Pitcher..., 'Deuterium-Tritium Experiments on TFTR', Inter Conf on Plasma Physics, AIP Conf Proc (USA), no 345, p 53
50. H W Herrmann, G P Chong,...C S Pitcher..., 'Deuterium-tritium results of TFTR's alpha collector', Nuclear Fusion 37 (1997) 293.
51. K Krieger, J Roth,...C S Pitcher... et al, 'Study of Gross and Net Erosion in the ASDEX Upgrade Divertor', J Nucl Mat 241-243 (1997) 684.
52. R Raman ...C S Pitcher..., 'CT Fuelling of TdeV', Proceedings of the 24th European Conference on Controlled Fusion and Plasma Physics, Berchtesgaden, June 1997.

53. R Neu, K Asmussen,....C S Pitcher..., 'The Tungsten Divertor Experiment at ASDEX Upgrade', Plasma Physics and Controlled Fusion 38 (1997) A165
54. O Gruber.....C S Pitcher..., 'Divertor Tokamak Operation at high densities on ASDEX Upgrade', Plas Phys Contr Fusion 39 (1997) b19.
55. J A Goetz,.... C S Pitcher..., 'High Confinement Dissipative Divertor Operation on Alcator C-Mod', Phys Plasma 6 (1999) 1899.
56. J A Goetz, B Lipschultz, C S Pitcher et al, 'Impurity Compression and Enrichment Studies on Alcator C-Mod', J Nucl Mat 266-269 (1999) 354.
57. B LaBombard, S Gangadhara,....C S Pitcher, 'A Novel Tracer-Gas Injection System for Scrape-Off-Layer Impurity Transport and Screening Experiments', J Nucl Mat 266-269 (1999) 571.
58. D Pappas, B LaBombard....C S Pitcher, 'Molybdenum Sources and Sinks in the Alcator C-Mod Tokamak', J Nucl Mat 266-269 (1999) 266.
59. D P Stotler, D P Coster....C S Pitcher..., 'Coupled Monte Carlo Neutral-Fluid Plasma Simulation of Alcator C-Mod Divertor Plasma Near Detachment', J Nucl Mat 266-269 (1999) 947.
60. W R Wampler, G M McCracken, D A Pappas, B LaBombard, B Lipschultz, and C S Pitcher, 'Molybdenum Erosion Measurements in Alcator C-Mod', J Nucl Mat 266-269 (1999) 217.
61. D Desideri, G Serianni, V Antoni, M Bagatin, C S Pitcher, L Tramontin, 'A Fast Moving Diagnostic System on the RFX Experiment', Rev Sci Instruments 70 (1999) 403.
62. B Lipschultz, J L Terry,....C S Pitcher..., 'The Role of Particle Sinks and Sources in Alcator C-Mod Detached Divertor Discharges', Physics of Plasmas 6 (1999) 1907.
63. B Lipschultz, C Boswell.....C S Pitcher..., 'Detached Divertor Plasmas in Alcator C-Mod: A Study of the Role of Atomic Physics', 17th International Atomic Energy Agency Fusion Energy Conference, IAEA-F1-CN-69/EX3/3.

64. M Greenwald, R Boivin, P Bonoli...C S Pitcher..., 'Characterization of Enhanced D-Alpha High Confinement Modes in Alcator C-Mod', *Physics of Plasmas* 6 (1999) 1943.
65. R L Boivin...C S Pitcher..., Proceedings of the 26th European Conference on Controlled Fusion and Plasma Physics, Maastricht, June 1999
66. A E Hubbard...C S Pitcher..., Proceedings of the 26th European Conference on Controlled Fusion and Plasma Physics, Maastricht, June 1999
67. W R Wampler, C H Skinner, C S Pitcher et al, 'Long Term Retention of Deuterium and Tritium in Alcator C-Mod'.
68. B LaBombard,....C S Pitcher..., 'Cross-Field Plasma Transport and Main-Chamber Recycling in Diverted Plasmas on Alcator C-Mod', *Nuc Fusion* 40 (2000) 2041.
69. D Mossessian,....C S Pitcher..., 'Measurements and Scalings of the H-mode Pedestal on Alcator C-Mod', *Plas Phys Control Fusion* 42 (2000), A255
70. R L Boivin,....C S Pitcher..., 'Effects of Neutral Particles on Edge Dynamics in Alcator C-Mod', *Phys Plasmas* 7 (2000) 1919.
71. P T Bonoli,....C S Pitcher..., 'Mode Conversion Electron Heating in Alcator C-Mod: Theory and Experiment', *Phys Plasmas* 7 (2000) 1886.
72. J L Weaver,....C S Pitcher..., 'Localization of Emission through Interpretation of Observed Zeeman Pattern', *Rev of Sci Instru* 71 (2000) 1664.
73. D Mossessian, A E Hubbard, E S Marmor...C S Pitcher..., 'Measurements and Scalings of the H-Mode Pedestal on Alcator C-Mod', *Plasma Phys Contr Fusion* 42 (2000) A255
74. B L Welch, J L Weaver, H R Griem...C S Pitcher..., 'Neutral Atom Temperature and Flow Measurements in the Edge Region of the Alcator C-Mod Tokamak', *Phys Plas* 8 (2001) 1253.

75. E S Marmor,...C S Pitcher..., 'High Resolution Visible Continuum Imaging Diagnostic on the Alcator C-Mod Tokamak', Rev of Sci Instru 72 (2001) 940.
76. D P Stotler, C S Pitcher et al, 'Modeling of Alcator C-Mod Divertor Baffling Experiments', J Nucl Mat 290-293 (2001) 967.
77. J L Terry, R Maqueda, C S Pitcher et al, 'Visible Imaging of Turbulence in the SOL of the Alcator C-Mod Tokamak', J Nucl Mat 290-293 (2001) 757.
78. B LaBombard....C S Pitcher....,'Particle Transport in the Scrape-Off-Layer and its relationship to discharge density limit in Alcator C-Mod', Phys Plas 8 (2001) 2107.
79. B Lipschultz....C S Pitcher..., 'Cross-Field Transport in the SOL: Its Relationship to Main Chamber and Divertor Neutral Control in Alcator C-Mod', 2000 IAEA Conf Sorrento, Italy, in press.
80. J A Goetz, C S Pitcher et al, 'The Relationship Between Impurity Neutral and Impurity Ion Compression in the Alcator C-Mod Divertor', Nucl Fusion, in press

11 References

1. Dr. G M McCracken, JET Joint Undertaking (retired), Abingdon, Oxon, U. K. OX14 3EA, telephone 44-1491-837433, email: garry@mccracken.fsnet.co.uk
2. Prof. P C Stangeby, Institute for Aerospace Studies, University of Toronto, 4925 Dufferin Street, Downsview, Ontario, Canada, M3H 5T6, telephone (416) 667-7729, email: pcs@starfire.utias.utoronto.edu and General Atomics, P O Box 85608, San Diego, CA 92186-5608, telephone (858) 455-4518, email: stangeby@fusion.gat.com.
3. Prof. R R Parker, MIT Electrical Engineering and Computer Science, Plasma Science and Fusion Center, NW17-288, Cambridge, MA, 02139, telephone (617) 258-6662, email: parker@psfc.mit.edu.