

PERSONAL INFORMATION

Professor of Physics
Department of Physics and the Institute for Research in Electronics and Applied Physics
University of Maryland, College Park

Education

Ph.D.	Princeton University	1978	Astrophysical Sciences
S.M./S.B.	MIT	1974	Physics

Employment Background

University of Maryland, College Park

1995	Professor	Department of Physics
1988–1995	Associate Professor	Department of Physics
1982–1988	Assistant Professor	Department of Physics and Astronomy
1981–1982	Research Associate	
1978–1981	Postdoctoral Fellow	Center for Theoretical Physics

Princeton University

1974–1978	Research Assistant	Department of Astrophysical Sciences
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Massachusetts Institute of Technology

1972–1974	Research Assistant	Center for Space Research
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Awards

1. Excellence in Teaching Award, University of Maryland, Department of Physics (1983)
2. Fellow, American Physical Society (1991)
3. Honorable Mention, Dean's Award for Excellence in Teaching, CMPS, UM (1999)
4. Certificate of Teaching Excellence, Center for Teaching Excellence Award, UM (2001)
5. Advisor Award, Department of Physics, UM (2015)

RESEARCH, SCHOLARLY, AND CREATIVE ACTIVITIES

Book Chapters

Approaches to Magnetic Confinement for Fusion, in Plasma Physics Applied (Crockett Grabbe, Ed, Transworld Research Network), Ch. 7, p. 147 (2006).

Publications in Refereed Journals

1. A. B. Hassam, Transmission of Alfvén Waves Through the Earth's Bow Shock; Theory and Observation, *J. of Geo. Res.* **83**, 643 (1978).
2. A. B. Hassam and R. M. Kulsrud, Time Evolution of Mass Flows in a Collisional Tokamak, *Phys. Fluids* **21**, 2271 (1978).
3. A. B. Hassam and R. M. Kulsrud, Convective Cells and Transport in Toroidal Plasmas, *Phys. Fluids* **22**, 2097 (1979).
4. A. B. Hassam, Higher Order Chapman-Enskog Theory for Electrons, *Phys. Fluids* **23**, 38 (1980).
5. A. B. Hassam, Fluid Theory of Tearing Instabilities, *Phys. Fluids* **23**, 2493 (1980).
6. J. F. Drake and A. B. Hassam, Collisional Drift Waves in a Plasma with Electron Temperature Inhomogeneity, *Phys. Fluids* **24**, 1262 (1981).
7. A. B. Hassam and J. F. Drake, The Rippling Instability, *Phys. Fluids* **26**, 133 (1983).
8. J. F. Drake, T. M. Antonsen, A. B. Hassam, and N. T. Gladd, Stabilization of the Tearing Mode in High Temperature Plasma, *Phys. Fluids* **26**, 2509 (1983).
9. A. B. Hassam and Y. C. Lee, Drift-Ideal Magnetohydrodynamics, *Phys. Fluids* **27**, 1138 (1984).
10. J. F. Drake, P. N. Guzdar, A. B. Hassam, and J. D. Huba, Nonlinear Mode Coupling Theory of the Lower-Hybrid-Drift Instability, *Phys. Fluids* **27**, 1148 (1984).
11. A. B. Hassam, Collisional Tearing of Field-Reversed Configurations, *Phys. Fluids* **27**, 2877 (1984).
12. B. D. Scott, A. B. Hassam, and J. F. Drake, Nonlinear Evolution of Drift-Tearing Modes, *Phys. Fluids* **28**, 275 (1985).
13. J. D. Huba, A. B. Hassam, I. B. Schwartz, and M. J. Deskinen, Ionospheric Turbulence: Interchange Instabilities and Chaotic Behavior, *Geophys. Res. Lett.* **12**, 65 (1985).
14. A. B. Hassam, Kinetic and Fluid Theories of Low Frequency Magnetohydrodynamics: A Comparison, *Phys. Fluids* **28**, 1684 (1985).

15. Bruce D. Scott, J. F. Drake, and A. B. Hassam, Nonlinear Stability of Drift-Tearing Modes, *Phys. Rev. Lett.* **54**, 1027 (1985).
16. A. B. Hassam, Bruce D. Scott, J. F. Drake, and D. A. Boyd, Mirnov Oscillations as a Diagnostic for the Radial Electric Field in Tokamaks, *Comments Plasma Phys. Controlled Fusion* **9**, 207 (1985).
17. A. B. Hassam, Quasilinear Evolution of the Self-Filamentation Instability, *Phys. Fluids* **29**, 4103 (1986).
18. Bruce D. Scott and A. B. Hassam, Analytical Theory of Nonlinear Drift-Tearing Mode Stability, *Phys. Fluids* **30**, 190 (1987).
19. A. B. Hassam, W. Hall, J. D. Huba, and M. J. Keskinen, Spectral Characteristics of Interchange Turbulence in the Ionosphere, *J. Geophys. Res.*, 13513 (1987).
20. A. B. Hassam and J. D. Huba, Structuring of the Magnetotail Amplitude Release, *Geophys. Res. Lett.* **14**, 60 (1987).
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22. B. H. Ripin, E. A. McLean, C. K. Manka, C. Pawley, J. A. Stamper, T. A. Peyser, A. N. Mostovych, J. Grun, A. B. Hassam, and J. D. Huba, Large Larmor Radius Interchange Instability, *Phys. Rev. Lett.* **57**, 2299 (1987).
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24. A. B. Hassam and J. D. Huba, Magnetohydrodynamic Equations for Systems with Large Larmor Radius, *Phys. Fluids* **31**, 318 (1988).
25. A. B. Hassam, Analytic Equilibrium of Thin Force-Free Current Layers in Solar Magnetic Arcades, *Astrophys. J.* **329**, 1002 (1988).
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29. A. N. Dharamsi and A. B. Hassam, Cold Shock Waves in Semiconductors and Insulators, *J. Appl. Phys.* **65**, 2998 (1989).
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32. A. B. Hassam and A. N. Dharamsi, The Deuterium Molecule in the Presence of Electronic Charge Contributions: Implications for Cold Fusion, *Phys. Rev. A* **40**, 6689 (1989).
33. A. B. Hassam, Tearing Modes in Solar Coronal Loops, *Ap. J.* **348**, 778 (1990).
34. J. D. Huba, A. B. Hassam, and D. Winske, Stability of Sub-Alfvénic Plasma Expansions, *Phys. Fluids B* **2**, 1676 (1990).
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47. A. B. Hassam, Reconnection of Stressed Magnetic Fields, *Ap. J.* **399**, 159 (1992).
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51. D. R. McCarthy, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Formation of the Shear Layer in Toroidal Edge Plasmas, *Phys. Fluids B* **5**, 1188 (1993).
52. A. B. Hassam, T. M. Antonsen, J. F. Drake, P. N. Guzdar, C. S. Liu, D. R. McCarthy, and F. L. Waelbroeck, Spontaneous and Driven Perpendicular Rotation in Tokamaks, *Phys. Fluids B* **5**, 2519 (1993).
53. P. N. Guzdar, J. F. Drake, D. R. McCarthy, A. B. Hassam, and C. S. Liu, Three-Dimensional Fluid Simulation of the Nonlinear Drift-Resistive Ballooning Modes in Tokamak Edge Plasmas, *Phys. Fluids B* **5**, 3712 (1993).
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58. A. B. Hassam, Poloidal Rotation of Tokamak Plasmas at Super Poloidal-Sonic Speeds, *Nucl. Fusion* **36**, 707 (1996).
59. A. B. Hassam, Dynamics and Dissipation of Compressional Alfvén Waves near Magnetic Cusp Configurations, *Phys. Plasmas* **2**, 4662 (1995).

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75. A. B. Hassam, Stability of Magnetohydrodynamic Dean Flow as Applied to Centrifugally Confined Plasmas, *Phys. Plasmas* **6**, 3738 (1999).
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77. D. C. Barnes, J. Hammer, A. Hassam, D. Hill, A. Hoffman, B. Hooper, J. Kesner, G. Miley, J. Perkins, D. Ryutov, J. Sarff, R. E. Siemon, J. Slough, and M. Yamada, Fusion Energy Science Opportunities in Emerging Concepts, *J. Fusion Energy* **18** (1), 13-17 (1999).
78. A. B. Hassam, J. F. Drake, Deepak Goel, and D. P. Lathrop, Liquid Metal Flow Encasing a Magnetic Cavity, *Phys. Plasmas Lett.* **7**, 1081 (2000).
79. S. DeSouza-Machado, A. B. Hassam, and R. Sina, Stabilization of Z Pinch by Velocity Shear, *Phys. Plasmas* **7**, 4632 (2000).
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81. Y. M. Huang and A. B. Hassam, Velocity Shear Stabilization of Centrifugally Confined Plasma, *Phys. Rev. Lett.* **87** (23), 5002 (2001).
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92. R. F. Ellis, A. Case, R. Elton, et al., Steady Supersonically Rotating Plasmas in the Maryland Centrifugal Experiment, *Phys. Plasmas* **12** (5), 055704 (2005).
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95. Y. M. Huang, D. Goel and A. B. Hassam, Ideal Magnetohydrodynamic Interchanges in Low Density Plasmas, *Phys. Plasmas* **12** (3), 032107 (2005).
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101. C. Teodorescu, R. Clary, R. Lunsford, R. F. Ellis, A. Hassam, I. Uzun-Kaymak and W. Young, Experimental Study on the Velocity Limits of Magnetized Rotating Plasmas, *Phys. Plasmas* **15** (4), 042504 (2008).
102. S. Choi, P. N. Guzdar, A. Case, M. R. Clary, R. Ellis, A. B. Hassam, R. Lunsford, C. Teodorescu and I. Uzun-Kaymak, Observations and Analysis of Magnetic Fluctuations in the Maryland Centrifugal Experiment, *Phys. Plasmas* **15** (4), 042507 (2008).

103. I. Shamim, C. Teodorescu, P. N. Guzdar, A. B. Hassam, R. Clary, R. Ellis and R. Lunsford, Bifurcated Equilibria in Centrifugally Confined Plasma, *Phys. Plasmas* **15** (12), 120701 (2008).
104. I. Uzun-Kaymak, P. N. Guzdar, R. Clary, A. B. Hassam, et al., Analysis and Modeling of Edge Fluctuations and Transport Mechanism in the Maryland Centrifugal Experiment, *Phys. Plasma* **15** (11), 112308 (2008).
105. I. U Uzun-Kaymak, P. N. Guzdar, S. Choi, M. R. Clary, R. F. Ellis, A. B. Hassam and C. Teodorescu, Nonlinear Mode Coupling and Sheared Flow in a Rotating Plasma, *Europhys. Lett.* **85** (1), 15001 (2009).
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111. C. P. Hung and A. B. Hassam, Thermal Force Drift Wave, *Phys. Plasmas* **19**, 22106 (2012).
112. Robert G. Kleva and A. B. Hassam, The excitation of geodesic acoustic modes by a resonant magnetic field and by resonant heating, *Phys. Plasmas* **20**, 32508 (2013)
113. C. P. Hung, A. B. Hassam Residual turbulence from velocity shear stabilized interchange instabilities, *Phys. Plasmas* **20**, 12301 (2013).
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116. R. R. Reid; Romero-Talamas, C. A.; Young, W. C. et al., 100 eV electron temperatures in the Maryland centrifugal experiment observed using electron Bernstein emission, *Phys. Plasmas* **21**, 063305 (2014).
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119. Centrifugal particle confinement in Mirror Geometry, Roscoe White, Adil Hassam, and Alain Brizard, *Physics of Plasmas* 25, Jan (2018)
120. Stellarator Research Opportunities: A Report of the National Stellarator Coordinating Committee, David A. Gates. et al, *Journal of Fusion Energy* 37, 51 Feb (2018)
121. Boundary layers and noise in magnetized plasmas line-tied at conducting surfaces, A. B. Hassam, Yi-Min Huang, arXiv:1812.09262, (Submitted to JPP Dec 2018)

Unpublished Reports

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2. A. B. Hassam and T. M. Antonsen, Jr., Effect of Flow Shear on Nonlinear Tearing Modes, (1986).
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Reviews

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6. A. N. Dharamsi, S. Jong, and A. B. Hassam, Excited State Absorption Measurements in Some Scintillator Dye Solutions, SPIE Proceedings, Vol. 669, Laser Applications in Chemistry, 175 (1986).
7. J. F. Drake, A. B. Hassam, A. M. Dimits, and P. N. Guzdar, Temperature Gradient Modes, Streamers, and Anomalous Transport, The Joint Varenna-Lausanne Theory of Fusion Plasmas, Chexbres, 3-7 Nov. 1988.
8. T. Antonsen, J. Q. Dong, J. F. Drake, P. N. Guzdar, A. B. Hassam, and C. S. Liu, Temperature Gradient Modes and Anomalous Transport, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, D-IV-7 (1988).
9. R. E. Denton, J. F. Drake, A. B. Hassam, and R. G. Kleva, Disruptive Phenomena in Tokamak Plasma, Plasma Physics and Controlled Nuclear Fusion Research, Int'l. Atomic Energy Agency, Vienna, D-III-1-2 (1988).
10. A. M. Dimits, J. F. Drake, P. N. Guzdar, and A. B. Hassam, Temperature Gradient Modes, Streamers, and Anomalous Transport, Proceedings of US-Japan Workshop on Structures in Combined Plasmas, (1989).
11. A. N. Dharamsi and A. B. Hassam, Fast Optoacoustic Processes in Semiconductors and Insulators, XVII International Quantum Electronics Conference Technical Digest, Anaheim, CA, 78 (1990).
12. A. B. Hassam, et al., Spontaneous Poloidal Spin Up and Transition to H Mode, Plasma Physics and Controlled Nuclear Fusion Research, IAEA, Vienna (1990).

13. P. N. Guzdar, J. F. Drake, A. B. Hassam, D. McCarthy, and C. S. Liu, Fluid Simulation of Drift-Resistive Ballooning Modes and the L-H Transition in Tokamaks, Proceedings of the 1st Energy Res. Power Supercomputer Users Symposium, Gaithersburg, MD (1991).
14. A. B. Hassam and F. L. Waelbroeck, Stabilizing Tokamak Microturbulence by NB Driven Rotation in Research Trends in Physics, New Ideas in Tokamak Confinement, M. N. Rosenbluth (Ed), p. 217 (1995).
15. J. F. Drake et al., Tokamak Edge Transport, LH Transition, Generation of Velocity Shear, Plasma Physics and Controlled Nuclear Fusion Research, IAEA, Vienna (1992).
16. P. Gohil, K. Burrell, A. Hassam, and T. Osborne, Plasma Rotation and the Radial E-field during Off-Axis NBI in D3D Tokamak, 5th H-Mode Workshop, Princeton Plasma Physics Laboratory (1996).
17. B. N. Rogers et al., Turbulence and Formation of Transport Barriers in Finite- β Tokamaks, 16th IAEA Fusion Energy Conference, Montreal (1996).
18. M. G. Jackson, B. R. Osborn, R. F. Ellis, and A. B. Hassam, CCP's: Enhanced Stability Scenarios, Proceedings of the 2nd Symposium "Current Trends in International Fusion Research", Washington DC (1998).
19. R.F. Ellis, S. Messer, A. Case, A. DeSilva, R. Elton, J. Ghosh, H. Griem, D. Gupta, A. Hassam, R. Lunsford, R. McLaren, J. Rodgers, C. Teodorescu, Steady Supersonic Rotation in the Maryland Centrifugal Experiment, 20th IAEA Fusion Energy Conference, Portugal (2004).
20. I. U Uzun-Kaymak, P. N. Guzdar, R. F. Ellis, A. B. Hassam, and C. Teodorescu, Observations and Simulations of Magnetic Fluctuations in MCX, submitted to the Journal of Fusion Energy, Innovative Confinement Concept (ICC) Workshop, Reno, NV, 2008.
21. I. U. Uzun-Kaymak et al., Dense Plasma Injection Experiment at MCX, submitted to the Journal of Fusion Energy, Innovative Confinement Concept (ICC) Workshop, Reno, NV, 2008.
22. C. A. Romero-Talamás, R. C. Elton, W. C. Young, et al., Charge and Mass Considerations for Plasma Velocity Measurements in Rotating Plasmas, J. Fusion Energy 29 [6], 543-547 (2010).

Talks

Invited Talks at Workshops and Conferences

1. A. B. Hassam, Nonlinear Drift-Tearing Modes, American Physical Society, Division of Plasma Physics, San Diego, CA (1985).

2. B. H. Ripin, J. D. Huba, and A. B. Hassam, Large Larmor Radius Interchange Instability, American Physical Society, Division of Plasma Physics, San Diego, CA (1987).
3. A. B. Hassam, Soft and Hard Thresholds for Ion Temperature Gradient Transport, Sherwood Fusion Theory Meeting, San Antonio, TX (1989).
4. A. B. Hassam, A Simulation of the December 1984 Ba Release, AMPTE Joint Science Working Group Meeting, Shepherdstown, WV (1990).
5. A. B. Hassam, T. M. Antonsen, J. F. Drake, and C. S. Liu, Spontaneous Poloidal Spin-Up of Tokamaks and Transition to H-Mode, IAEA TCM on Tokamak Transport, Princeton, PA (1990).
6. A. B. Hassam, Spontaneous Poloidal Spin-Up of Tokamaks and L-H Transition, H-Mode Workshop, Abingdon, Oxfordshire (1991).
7. A. B. Hassam and F. L. Waelbroeck, Stabilization of Tokamak Microturbulence by Neutral Beam Driven Rotation in Research Trends in Physics, New Ideas in Tokamak Confinement, M. N. Rosenbluth (Ed), p. 217 (1995).
8. J. F. Drake, J. M. Finn, P. N. Guzdar, A. B. Hassam, D. R. McCarthy, T. M. Antonsen, and C. S. Liu, Tokamak Edge Transport, Sheared Flow and the L-H Transition, IAEA Meeting, Würzburg, Germany (1992).
9. A. B. Hassam, F. Waelbroeck, G. G. Craddock, P. H. Diamond, Y. B. Kim, A. Hyatt, T. Jensen, A. Leonard, H. Biglari, C. K. Phillips, M. Ono, Theory of Active Confinement Control by Externally-Induced Generation of Velocity Shear Layers, IAEA Meeting, Würzburg, Germany (1992).
10. A. B. Hassam, Spontaneous and Driven Poloidal Flows in Toroidal Plasmas, American Physical Society, Division of Plasma Physics, Seattle, WA (1992).
11. A. B. Hassam, Centrifugally Confined Plasmas, Fusion Energy Sciences Advisory Committee Panel on Alternative Concepts, San Diego (1996).
12. A. B. Hassam, Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Innovative Confinement Concepts Meeting, Marina del Rey, CA (1997).
13. A. B. Hassam, Velocity Shear Stabilization of SPIRIT FRC Plasma, Workshop on the SPIRIT Expt for Rotating FRC's, Princeton University, Plasma Lab (1998).
14. A. B. Hassam, Thermoelectric Steady-State FRC's, Workshop on the SPIRIT Expt for Rotating FRC's, Princeton University, Plasma Lab (1998).
15. A. B. Hassam, Flowing Plasmas, Symposium for R. M. Kulsrud's 70th Birthday, Princeton University, Astrophysical Sciences (1998)
16. A. B. Hassam, Steady-State Thermoelectric FRC's, Workshop on Status and ... for FRC Research, Princeton University, Plasma Lab (1999).

17. A. B. Hassam, Stabilization of Z-Pinch by Velocity Shear, MHD Workshop, Princeton University, Plasma Lab (1999).
18. A. B. Hassam and R. F. Ellis, Maryland Centrifugal Torus: A Centrifugally Confined Plasma for Fusion, Fusion Summer Study, Snowmass, CO (1999)
19. A. B. Hassam, Liquid Metal Flow Encasing a Magnetic Cavity, Fusion Summer Study Snowmass, CO (1999)
20. A. B. Hassam, Stabilization of Ideal MHD modes by Velocity Shear, IAEA technical conference on Confinement and Stability of Fusion Alternates, Varenna, Italy (2000)
21. R. F. Ellis and A. B. Hassam, Centrifugally Confined Plasmas: An Alternative Concept for Fusion, American Physical Society, Division of Plasma Physics, Quebec City, Canada (2000).
22. A. B. Hassam and R. F. Ellis, Velocity Shear Stabilization of Ideal MHD Instabilities, US-Japan Workshop on Velocity Shear Stabilization in Plasmas, Austin, TX (2002).
23. R. F. Ellis and A. B. Hassam, Maryland Centrifugal Experiment: Motivation and Status, Innovative Confinement Concepts Conference, College Park, MD (2002).
24. A. B. Hassam, Alfvénic Confinement for Fusion, Innovative Confinement Concepts Conference, College Park, MD (2002).
25. R. F. Ellis and A. B. Hassam, Recent Results from the Maryland Centrifugal Experiment, Innovative Confinement Concepts Conference, Seattle, WA (2003).
26. A. B. Hassam, Thermoelectric Rotating Torus for Fusion, Innovative Confinement Concepts Conference, Seattle, WA (2003).
27. Y. M. Huang and A. B. Hassam, Velocity Shear Stabilization of Centrifugally Confined Plasmas, American Physical Society, Division of Plasma Physics, Albuquerque, NM (2003).
28. A. B. Hassam, The Maryland Centrifugal Experiment and Velocity Shear Stabilization of Ideal MHD Interchanges, Innovative Confinement Concepts Conference, Madison, WI (2004).
29. R. F. Ellis and A. B. Hassam, Steady Supersonically Rotating Plasmas in the Maryland Centrifugal Experiment, American Physical Society, Division of Plasma Physics, Savannah, GA (2004).
30. A. B. Hassam, Progress on the Maryland Centrifugal Experiment, Innovative Confinement Concepts Conference, College Park, MD (2007).
31. A. B. Hassam, Velocity Shear Stabilization of Ideal Interchange Modes on the Maryland Centrifugal Experiment, Sherwood Fusion Theory Conference, Annapolis, MD (2007).

32. A. B. Hassam and R. F. Ellis, The Maryland Centrifugal Experiment, Magnetic Mirror Review Task Force, Lawrence Berkeley Laboratory, CA (2008).
33. A. B. Hassam, Thermoelectric Rotating Torus for Fusion, ICC Meeting, Princeton, NJ (2010).
34. C. Teodorescu, A. B. Hassam, Experimental Evidence of Centrifugal Confinement on MCX, ICC Meeting, Princeton, NJ, (2010).
35. A. B. Hassam, Results from the Maryland Centrifugal Experiment, TTF Meeting, Annapolis, MD (2010).
36. A.B. Hassam and W. Dorland, Centrifugal Confinement ? A Strategic Element for Fusion, US Magnetic Fusion Res Strategic Directions Workshop (2017).
37. A.B. Hassam 20th US-Japan Wkshp on Fusion Neutron Sources, Centrifugal Confinement , UMCP (2018)
38. A.B. Hassam Presentation to FUSE, Private Investor Group, APS Satellite meet, Centrifugal Confinement (2018)

Colloquia and Seminars

1. Convective Cells and Transport in Toroidal Plasmas, Princeton University Plasma Physics Seminar (1978).
2. Convective Cells and Transport in Toroidal Plasmas, University of Maryland Plasma Physics Seminar (1979).
3. Temperature-Gradient-Driven Drift Waves, University of Maryland Plasma Physics Seminar (1980).
4. The Tokamak Approach to Fusion Power, Old Dominion University Electrical Engineering Colloquium (1982).
5. A New Ohm's Law for Tearing of Field-Reversed Configurations, Naval Research Laboratory Plasma Dynamics Seminar (1986).
6. Quasilinear Evolution of the Self-Filamentation Instability, University of Maryland Plasma Physics Seminar (1986).
7. Large Larmor Radius MHD, University of Maryland Plasma Physics Seminar (1987).
8. Tearing Modes in Solar Coronal Loops, NASA Solar Physics Seminar (1988).
9. The D-D Bond in the Presence of Electronic Charge Configurations, and Cold Fusion, University of Maryland, Plasma Physics Seminar (1989).
10. Magnetohydrodynamics of Systems with Large Larmor Radius, University of Maryland, Space Science Seminar (1990).

11. Plasma Flows in Tokamaks, University of Maryland Plasma Physics Seminar (1992).
12. Spontaneous and Driven Poloidal Flows in Tokamaks, Princeton University TFTR Seminar (1992).
13. Spontaneous and Driven Flows in Tokamaks, GA Technologies (1992).
14. Stabilizing Tokamak Microturbulence by NBI Driven Poloidal Flow, UCLA Plasma Physics Seminar (1992).
15. Dynamics of Large Larmor Radius Plasmas, UCSD Space Physics Seminar (1993).
16. Suppressing Microturbulence by Sheared Rotation: Theory and Recent DIII-D Experiment, University of Maryland Plasma Physics Seminar (1993).
17. Magnetic Nulls as Low-Alfvénic-Q Cavities, Solar/Stellar Theory Group, GSFC, NASA (1994).
18. Centrifugally Confined Plasmas for Fusion, Plasma Theory Seminar, Lawrence Livermore Labs (1995).
19. Frozen-in and Line-Tying for the Earth-Magnetosphere System, Space Plasma Theory Seminar, University of Maryland (1996).
20. MHD of Fusion and Other Plasmas, Graduate Student Seminar, Foundations and Frontiers, University of Maryland (1996).
21. Centrifugally Confined Plasmas for Fusion, Plasma Seminar, University of Maryland (1996).
22. Centrifugally Confined Plasmas for Fusion, Princeton University Plasma Physics Laboratory (1997).
23. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, NRL Plasma Seminar (1998).
24. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, MIT (1999).
25. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, Columbia University (1999).
26. Centrifugally Confined Plasmas: An Alternative Concept for Fusion, Plasma Seminar, University of Wisconsin (2000).
27. Can Velocity Shear Yield Laminar, Confined Plasmas for Fusion?, Plasma Seminar, MIT (2002).
28. Thermoelectric Rotating Torus: An Alternative Concept for Fusion?, Plasma Seminar, University of Maryland (2003).

29. The Equations of Plasma Physics: What to Use When, and Why, 2 Plasma Seminars, University of Maryland (2003).
30. The Physics of Fusion, TREND Seminar, University of Maryland (2005).
31. Divergent Subcritical Convection in Driven Plasmas, Plasma Seminar, University of Maryland (2005).
32. Centrifugal Confinement and the MCX Experiment, Applied Physics Colloquium, Columbia University (2005).
33. Centrifugal Confinement and the MCX Experiment, Plasma Physics Colloquium, University of Wisconsin (Madison) 2006.
34. Recent Progress on the Maryland Centrifugal Experiment, Plasma Physics Seminar, Princeton Plasma Physics Laboratory (2007).
35. Centrifugal Confinement for Fusion, Howard University Physics Colloquium (2009).
36. Recent Results from the Maryland Centrifugal Experiment, MIT Plasma Physics Colloquium (2010).
37. Centrifugal Confinement, An Alternative Concept for Fusion, Princeton Plasma Physics Lab, Plasma Seminar (2017).
38. Univ Wisc Madison Plasma Phys Colloq, Centrifugal Confinement for Fusion and the MCX (2018)

Exhibits

1. "What is Fusion?", Display Posters at Fusion Exhibit, Capitol Hill, 1993, 1994, 1995, 1996.

News Media

1. Discovery Science Channel, Interviewed on "Science Live!", on "Fusion as a Future Energy Source", Discovery Science Studios, Washington, DC (2000)
2. in *The Photon*, Department of Physics publication, "Spinning (Proto)Star at UM" (2005)
3. in *The Diamondback*, UMCP newspaper, "Professors Helping Create New Global Energy Source" (2005)

Patents, etc.

1. D. P. Lathrop and A. B. Hassam, D-T Fusion from Cavitation of Liquid Metals, Patent Disclosure, University of Maryland (1997).

2. A. B. Hassam and D. P. Lathrop, "Magnetically Secured Flowing Liquid Metal Walls for High Heat Flux Processing", Patent Disclosure, University of Maryland (1999).

Contracts and Grants

1. Co-Principal Investigator, Solar Loop Equilibria Research, NASA, June 1988 – June 1989, \$60,000; June 1989 – June 1991, \$75,000.
2. Principal Investigator, Spontaneous and Induced Perpendicular Rotation of Tokamaks, GA Technologies, September 1992 – August 1993 (sabbatical), \$49,000.
3. Co-Principal Investigator, Nonlinear Dynamics and Plasma Transport, DOE, \$100,000 (5 Co-PI's), ongoing.
4. Principal Investigator, Dynamics of Solar Coupled Flux/Flow Field Systems, NASA, June 1991 – November 1994, \$55,500.
5. Principal Investigator, Magnetic Nulls as Low Alfvénic- Q Regions, NSF, May 1995 – April 1997, \$47,000.
6. Principal Investigator, Numerical Study of Velocity Shear Stabilization of 3D MHD Instabilities, DOE, 1999–2002, \$56,000 per year.
7. Co-Principal Investigator, Centrifugally Confined Plasma for Magnetic Fusion Energy, DOE, 1998–2000, \$23,000 per year.
8. Project Director, LINK Foundation Fellowship awarded to graduate student D. Goel, 2000-2001, \$20,000, one year.
9. Co-Principal Investigator, MCT: An Experiment to Test Centrifugal Confinement for Magnetic Fusion Energy, DOE, 2000–2004, \$425,000 per year.
10. Principal Investigator, Theoretical Considerations for Centrifugally Confined Plasma, DOE, 2002–2005, \$75,000 per year.
11. Principal Investigator, Theoretical Considerations for Centrifugally Confined Plasmas, DOE, 2005–2006, \$73,000.
12. Co-Principal Investigator, MCX: An Experiment to Test Centrifugal Confinement for Magnetic Fusion Energy, DOE, 2005–2012, \$480,000 per year.
13. Principal Investigator, Theoretical Considerations for Centrifugally Confined Plasmas, DOE, 2007–2011, \$70,000 per year
14. Co-Principal Investigator, Maryland Fusion Theory Research Program, DOE, \$700,000 per year (6 Co-PI's), 2014-2017.
15. Co-Principal Investigator, Maryland Fusion Theory Research Program, DOE, \$700,000 per year (6 Co-PI's), 2017-2020.

Editorships, Editorial Boards, and Reviewing Activities for Journals

1. Referee, *Phys. Fluids*, *Nuclear Fusion*, *J. Geophys. Res.*, *Phys.*, *Rev. Lett.*, *Planetary and Space Science*, *Ap. J.*, *Solar Physics*, *Am. J. Phys.*, *J. Fusion Energy*.
2. Reviewer, NSF, AFOSR, NASA, DOE, SBIR

TEACHING AND ADVISING**Courses Taught Since 1988**

<u>Course</u>	<u>Year</u>	<u>Approx. Enrollment for Each</u>
Physics 410/373	2018–2019	40/50
Physics 274/373	2017–2018	40/50
Physics 410/274	2016–2017	60/50
Physics 604/274	2015–2016	25/50
Physics 604/606	2014–2015	25/20
Physics 604/606	2013–2014	22/16
Physics 604/606	2012–2013	40/35
Physics 601/121	2011–2012	35/130
Physics 761/121	2010–2011	28/120
Physics 374/121	2009–2010	45/102
Physics 601	2008–2009	40
Physics 601/411	2007–2008	38/25
Physics 601/762	2006–2007	27/15
Physics 272/606	2005–2006	45/50
Physics 272/374	2004–2005	40/40
Physics 272/374	2003–2004	40/30
Physics 374/374	2002–2003	25/30
Physics 374/—	2001–2002	20/—
Physics 604/411	2000–2001	40/25
Physics 604/411	1999–2000	35/30
Physics 604/262	1998–1999	35/90
Physics 761/762	1997–1998	18/4
Physics 761/798P	1996–1997	10/8
Physics 761/762	1995–1996	18/12
Physics 604/606	1994–1995	20/25
Physics 604/606	1993–1994	25/25
(Sabbatical)	1992–1993	—
Physics 301/410	1991–1992	25/25
Physics 604/606	1990–1991	25/25
Physics 761/301	1989–1990	15/25
Physics 761/301	1988–1989	15/25

Other Teaching

Advisor to Rickover Intern, Summer 1989
 Independent Study, Mark Levy (1984)

Reading Course, Fluid Plasmas, 3 Grad Students (1995)
Lectures on MHD, Recipients of National Undergraduate Fusion Fellowships (1996, 1997, 1998, 2009)
Independent Study, Physics 411, Chad Groft (2002)
Portz Lecture, UMD (2009)
Phys Olympics, featured speaker, UMD (2010)
Society of Phys Students, Lecture on Fusion, UMD (2015)

Manuals, Notes, and Contributions to Teaching

Fluid Theory of Plasmas, University of Maryland Report, Physics Publication No. 87-037, 220 pages (1985) (Course Notes for Physics 761, Introduction to Plasma Physics).
Proposal for an Enhancement of the CMPS Undergraduate Curriculum to Reflect Computational Problem Solving, Committee Chair, to be a new Certificate in Computational Science, (2002-2003)

Advising: Other Than Research Direction

Randy Holmes (undergrad, 1992)
6 incoming graduate students per year (2009 to 2011)
4 incoming undergraduate students per year (2009-2011)
2 incoming graduate students per year (2014, 2015)
4 incoming undergraduate students (2015, 2016)
4 incoming graduate students per year (2015,2016,2017)

Advising: Research Direction

Undergraduate

Jeremy Cheron, 1995-1996
R. P. Lambert, Summer 1992 (see publication 57)
Bryan Osborn, 1998-, (see publication 78)
Mark Jackson, NUF Fellow, Summer 1998, see Conf. Proc. 18
Tanveer Choudhury, 1998
Ricardo Rojas, NUF Fellow, Summer 2000
David Adler, 2002-2003 (see publication 93)
Jupiter Bagaipo, 2004-2007
Imran Shamim, 2005-2007 (see publication 103)
Gardner Swan, 2006-2007 (see publication 107)
Chris Libelo, 2018-
Orlando Romeo, 2018-

Graduate

D. E. Williams, Summer 1992

D. Devine, 1990–1992 (Transferred to University of Colorado)
Z. Wang, 1987–1989 (Transferred to UCLA)
M. Shay, Fall 1994 (Rotating Plasmas)
Z. Chacko, S96, F96 (see publication 70)
S. Messer, 1999– , (see publication 78)
A. M. Rey, 2000–2001 (see publication 82)
Deepak Goel, 1999–2001 (see publication 95)
M. Mahmud, 2008 (PhD Co-advisor)
L. McMurtrie, 2011–2012 (pre-PhD)

Doctoral

B. D. Scott, 1982–1985 (PhD)
E. N. Opp, 1986–1992 (PhD)
J. B. Harold, 1988–1993 (PhD)
R. A. Scheper, 1994–1998 (PhD)
Y. M. Huang, 2000–2004 (PhD)
S. W. Ng, 2002–2007 (PhD)
C. P. Hung, 2006–2013 (PhD)
J. Bagaipo, 2007–2013 (PhD)
W. C. Young, 2007–2012 (PhD)
R. Reid, 2008–2013 (PhD, Co-advisor)
W. Sengupta, 2011–2016 (PhD)

SERVICE

Offices and Committee Memberships Held in Professional Organizations

Member, APS, AGU

Member, Executive Committee, Sherwood Fusion Theory Conference (1992)

Vice-Chairman, Executive Committee, Sherwood Fusion Theory Conference (1993)

Chairman, Executive Committee, Sherwood Fusion Theory Conference (1994)

Chairman, Faculty Assembly, Institute for Plasma Research (1994)

Member, Program Committee, APS Spring Meeting (1998)

Member, Program Committee, Princeton Plasma Lab MHD Workshop (1999)

Acting Chair, APS-DPP Program Theory SubCommittee, APS Meeting (1999)

Member, Program Committee, Fusion Summer Study ICC WG (Snowmass) (1999)

Vice-President, University Fusion Association (2001, 2002)

Co-Chair, Local Organizing Committee, ICC 2002 Conference, UMCP (2001-2)

President, University Fusion Association (2003, 2004)

Chair, Local Organizing Committee, US ITER Research Forum Conference, UMCP (2003)

Member, APS-DPP Program Selection Committee (2005-2006)

Member, Program Advisory Committee, D3D Experiment at General Atomics (2006-2009)

Co-Chair, Local Organizing Committee, ICC 2007 Conference, UMCP (2006-7)

Vice-Chair, Marshall N. Rosenbluth Award for PhD Thesis Committee (2007)

Chair, Marshall N. Rosenbluth Award for PhD Thesis Committee (2008)

Member, Program Committee, ICC (2008, 2009)

Member, Nominations Committee, UFA President (2008)

Chair, Ad Hoc Committee, APS Session to honor Dr Guzdar (2011)

Chair, PAC, for Madison Torus Experiment (2012-2015)

Unpaid Reviewing Activities for Agencies

Review Panel, Member, NASA Guest Investigator Proposals (1990)

Review Panel, Member, NASA Supporting Research and Technology Proposals (1991)

Review Panel, Member, DOE review, Fusion Theory (FRC), University of Texas (1991)

Review Panel, Member, NASA Supporting Research and Technology Proposals (1992)

Review Panel, Member, NASA Supporting Research and Technology Proposals (1995)

Review Panel, Member, DOE review, Proof of Principle Innovative Fusion (1998)

Chair, NASA Guest Investigator - Solar Physics Review Panel (1998)

Organizer, Fusion Day, Fusion Education Day at Congress (1995)

Review Panel, Member, NSF Physics Frontier Centers (2010)

Other Non-University Committees, Commissions, Panels, etc.

Advisory Board, COLLEGE FIND, College Selection Service, Chapel Hill, NC(1986-88)

Working Group, Member, Transport Task Force WG on L-H Transition (1990-2000)

Working Group, Member, Transport Task Force WG on Active Control(1990-2000)

Advisory Committee, Member, Proposed Toroidal Physics Experiment, National MFE Program (1994–1995)

Selection Committee, Member, National Undergrad Fellowships in Plasma Physics and Fusion Engineering (1996, 1997)

Selection Committee, Chair, National Undergrad Fellowships in Plasma Physics and Fusion Engineering (1998, 1999)

At-Large Reviewer, ReNew Report, Princeton (2009)

Member, Dawson Research Excellence Award, Selection Committee (2014)

Working Group, Member, US Magnetic Fusion Strategic Directions (2017-2018)

Paid Consultancies

Consultant, Science Applications, Inc., McLean, VA (1983–1990)

Consultant, Blacklight Power Inc., Cranbury, NJ (2001)

University Committees

Chair, CMPS Committee on New Course in Computer Science (1997)

Chair, CMPS Committee for Undergrad Computing Initiative (2002)

Interviewer, Banneker-Key Fellowships, UMCP (2005, 2010)

Member, Honors Selection Committee (2009, 2010)

Member, University Honor Board (2010)

Member, Review Committee IREAP Director (2010)

Member, University Honor Board (2011)

Senator, University Senate (2014)

Departmental Committees

Member, Physics Olympics (1 year)

Member, TA Assignments (4 semesters)

Member, Center for Theoretical Physics (2 years)

Chairman, Center for Theoretical Physics (1 year)

Member, Extended Qualifying Committee (several semesters)

Member, Revision of Qualifier Committee (Williams, Chair) (1 year)

Member, Physics Council (1 year)

Member, Physics Council Executive (1 year)

Member, Executive Committee for IPR (1985, 1990)

Member, TA Evaluations (1 year)

Member, Physics Salary Committee (1994–1995, 1995–1996)

Coordinator, Plasma Seminar (1995, 1996, 1997)

Member, Appointments, Promotions, Tenure Committee (AY96, 97)

Chair, Appointment Committee - Associate Research Scientist (1997)

Chair, Promotion Committee - Professor (1998)

Member, Undergrad Committee (1998-2002)
Member, Qualifier Committee (1998-2002)
Liaison, Computer Science and Math for Computational Physics (1998-)
Member, Physics Council (2003-2005)
Member, Graduate Admissions (2005-)
Member, APT Committee (2005, 2009)
Member, Teaching Interviews (2005-)
Member, IREAP Awards Committee (2005-)
Chair, Physics Full Professor Promotion Committee (2005)
Member, Physics 374 Ad Hoc Committee (2005-)
Chair, Appointment Committee - Associate Research Scientist (2005)
Chair, Physics Salary Committee (2007, 2008)
Chair, Physics Colloquium Committee (2007, 2008)
Co-Chair, Promotion Committee (2008)
Organizer, Physics Colloquium (2006-2008)
Chair, Appointment Committee - Associate Research Scientist (2007)
Interviewer, Teaching Interviews (2004-2007)
Member, IREAP Executive Committee (2004-2007, 2009-2010)
Member, Graduate Committee (2008,2011)
Chair, Ad Hoc Nomination Committee Maxwell Prize – Drake (2010)
Member, Ad Hoc Nomination Committee E. O. Lawrence Prize – Dorland (2010)
Chair, APT Committee (2010-2011)
Chair, Salary Committee (2014)
Member, Teaching Review (2010,2014,2016)
Member, Promotion Committee (2010,2014,2015,2016,2017)
Member, Graduate Committee (2014,2015,2016,2017,2018)
Member, Priorities Committee (2015,2016,2017,2018)
Member, Qualifier Prep Committee (2016,2017,2018)
Organizer, Plasma Theory Weekly Group Meetings (2016,2017,2018)

This curriculum vitae is current and accurate.

March 1, 2019

Adil Hassam