

Curriculum Vitae

Zhong Min Jin

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EDUCATION:

- 1979 - 1983 **BSc in Mechanical Engineering**
Jiaotong University, Xian, P.R. China
- 1983 - 1984 **Diploma in English**
Shanghai Foreign Languages Institute, Shanghai, P.R. China
- 1984 - 1988 **PhD in Biotribology**
The University of Leeds, Leeds, England

CAREER SUMMARY:

- July 2004 – now **Professor of Computational Bioengineering**
Institute of Medical and Biological Engineering
School of Mech. Eng, University of Leeds, England
- Apr. 2003 – June 2004 **Professor of Medical Engineering**
School of Eng., Design and Technology, Bradford Univ., England.
- Apr. 1999 – March 2004 **Senior Lecturer in Medical Engineering**
School of Eng., Design and Technology, Bradford Univ., England.
- Apr. 1995 – Apr. 1999 **Lecturer in Engineering Design and Analysis**
Department of Mech. and Med. Eng., Bradford University, England.
- July 1989 - April 1995 **SERC Research Fellow**
Department of Mechanical Engineering, University of Leeds, England.

PROFESSIONAL QUALIFICATIONS:

- CEng (1995)
- Member of the Institution of Mechanical Engineers (MIMechE), UK (1995-).

PERSONAL ACHIEVEMENTS:

- Water Arbitration Prize, 2003, Institution of Mechanical Engineers, UK
- Overseas Research Scholarship, 1984 -1988
- Thomas Stephen Prize, 1988, Institution of Mechanical Engineers, UK.
- 1989 Tribology Bronze Medallist, Institution of Mechanical Engineers, UK.

EXTERNAL RECOGNITION OF RESEARCH:

- EPSRC Peer Review College Member (2003 to 2005); 2006-2009)
- Editorial Board Member for Journal of Engineering Tribology, IMechE.
- Visiting Professor at Xian Jiaotong University (2001), Shanghai Jiaotong University (2005), China University of Mining and Technology (2005) and Nanjing University of Science and Technology (2005)
- Academic referee for the following international journals: **Journal of Engineering in Medicine (IMechE), Journal of Engineering Tribology (IMechE), Journal of Mechanical Engineering Science (IMechE), Wear, Journal of Biomechanics, Biomaterials, Medical Engineering and Physics, Journal of Tribology (Trans ASME), Journal of Biomechanical Engineering (Trans ASME), Tribology International, Annals of Biomedical Engineering, Control and Cybernetics, JBJS (British), Osteoarthritis and Cartilage, Tribology Letter**
- Peer review for **EPSRC, Czech Academy of Science, ARC, R&D Office (Northern Ireland Health & Social Services), China Natural Science Foundation, Academy of Finland.**
- Regular consulting to major orthopaedic manufactures in the area of biotribology modelling, including **DePuy (Leeds, UK), Smith and Nephew Orthopaedics (Memphis, USA), Corin Medical (UK), Midland Technology (UK), Sulzer/Centerpulse Orthopedics (Switzerland), Impliant (Israel) and O & K Escalators Ltd (UK),**

LIST OF RESEARCH GRANTS

Research Councils:

- EPSRC, Lubrication Modelling of Metal-on-Metal Artificial Hip Joint Replacements, 1 October 1997 to 30 September 2000. £47,690
 - EPSRC/DTI Link Project, SUREHIP Surface Engineered Bearings for Hip Prosthesis, 1 October 1998 to 30 September 2001, joint principal investigator with Dr J D Bolton (50%*), University of Bradford. £205,238
 - EPSRC, Reducing Asperity Contact and Minimising Polyethylene Wear Debris in Artificial Hip Joint Replacements, March, 2001 to Feb 2004. £137,901
 - JREI: A Six Station Knee Joint Simulator: Alternative Bearing Materials for Artificial Knee Joints, April 2000, co-investigator with Professor Fisher from Leeds University (25%). £70,000
 - EPSRC, Engineering International Collaboration on Tribology of natural synovial joints and artificial joint replacements between Universities of Leeds and Bradford, University of Waterloo (Canada) and Kyushu University (Japan), Nov 2000 to Oct 2004. £54,786
 - EPSRC, Further Insight into the Dimple Phenomena in Elastohydrodynamic Lubricated Contacts, May 2003 to Nov 2003. £44,600
 - ESPRC, Mixed lubrication mechanism in metal-on-metal hip joints under transient conditions, 2004-2008 £196,119
 - EPSRC, Wear prediction for artificial hip joints: an integrated tribological study of contact mechanics, friction, lubrication and wear, 2004-2007 £135,706
 - EPSRC, Tribological Modelling of Biphasic Articular Cartilage and Cartilage Replacement Systems in Anatomical and Physiological Models, 2006 – 2009 £180,377
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- Total £1072,417**

Charities:

- ARC, Biphasic Surface Layer Lubrication of Articular Cartilage, joint principal investigator with Prof J Fisher (50%), Jan 2002 to Dec 2004. £130,522
 - ARC, Effects of patient bone characteristics and surgical techniques on contact mechanics of metal-on-metal hip surfacing prosthesis, 2004-2006 £73,740
 - Royal Society, Ex-Agreement Study Visit from China, May 2002 to August 2002. £3710
 - Royal Society, Ex-Agreement Study Visit from Iran, July 2003 to September 2003. £4111
 - Royal Society, Postdoctoral research fellow 2006 £21000
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- Total £233,083**

Government Bodies:

- Monbusho (the Ministry of Education, Science, Culture and Sport, Japan), Lubrication Mechanism in Natural and Artificial Joints, 1995-1998, co-investigator with Professor Murakami, Kyushu University, Japan and Professor Fisher and Dr E Ingham (25%), Leeds University. ¥6,500,000
(£36,000)
 - The British Council (Japan), Collaborative Research Project on Artificial Joint Replacements between Bradford, Leeds and Kyushu Universities (Japan), 1 January 1999 to 31 December 2001, principal investigator with Professor Fisher and Dr E Ingham (25%), Leeds University and Professor Murakami, Kyushu University, Japan. £12,800
 - HEFCE: Project capital allocation: computer modelling and measurement for biological and polymer engineering, joint principal investigator with Professor P D Coates (50%). £270,000
 - SRIF2: Medical and Polymer Engineering, joint principal investigator with Professor P D Coates (50%). £850,000
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- Total £1,168,800**

* (%) indicates my contribution.
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Industry:

• DePuy International, Lubrication Modelling of Metal-on-Metal Artificial Hip Joint Replacements, 1 October 1997 to 30 September 2000.	£11,175
• Sulzer Orthopaedics, Collaboration on Biotribology	£52,000
• DePuy International, Friction and Lubrication of Second Generation Hyaluronic Acid with Additives	£15,371
• DePuy International, Metal-on-Metal Resurfacing Prosthesis	£10,000
• DePuy International, Metal-on-Metal Resurfacing Prosthesis	£18,000
• Zimmer, Metal-on-Metal Resurfacing Prosthesis	£18,000
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	Total £124,546
Others:	
• University of Bradford: research studentship.	£16,500

LIST OF PUBLICATIONS

Book Chapters

1. Jin Z M and Dowson D (1998). Chapter 25 Aspects Tribologiques du Joint Synovial Naturel et des Protheses. In *Materiaux Et Tribologie*, Eds G Zambelli and L Vincent, 347-368.
2. Jin ZM, Jagatia M and Jalali-Vahid D (2003) Prediction of Lubricating Film Thickness in UHMWPE Hip Joint Replacements, In *Friction, Lubrication and Wear of Artificial Joints*, Ed by I Hutchings, Professional Engineering Publishing, 75-87.
3. Jin ZM, Tipper JL, Stone MH, Ingham E and Fisher J (2006) Hip Joints: Artificial - Biotribology of Bearings and Biological Response of Wear Debris, John G Webster (ed.) *Encyclopedia of Medical Devices and Instrumentation*, John Wiley & Sons Inc, pp.514-525.
4. Jin ZM, Ingham E and Fisher J (2006) Biotribology: Material Design, Lubrication and Wear in Artificial Hip Joints, George E Totten (ed.), *CRC Handbook of Lubrication - Theory and Practice of Tribology: Volume 1 -Application and Maintenance*, pp17-1-17-24.

Refereed Journal Papers

1. Wang FC and Jin ZM (2006) Effect of non-spherical bearing geometry on transient elastohydrodynamic lubrication in metal-on-metal hip joint implants, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, in press.
2. Brockett CL, Williams S, Isaac G, Jin ZM and Fisher J (2006) A comparison of friction in 28mm conventional and 55mm resurfacing metal-on-metal hip replacements, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, in press.
3. Gao LM, Meng QE, Wang FC, Yang PR and Jin ZM (2006) Comparison of Numerical Methods for EHL Analysis of Metal-on-Metal Hip Implant: Multi-grid verses Newton-Raphson, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, in press.
4. Udofia IT, Liu F, Jin ZM, Roberts P and Grigoris P (2006) Initial stability and contact mechanics analysis of press-fit hip resurfacings prostheses, *JBJS (B)*, in press.
5. Cui JL, Yang PR, Jin ZM and Dowson D (2006) Transient elastohydrodynamic analysis of elliptical contacts Part 3: non-Newtonian lubricant solution under isothermal and thermal conditions, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, in press.
6. Brockett C, Williams S, Jin ZM, Isaac G and Fisher J (2006) Friction of total hip replacements with different bearings and loading conditions, *Journal of Biomedical Materials Research, Part B: Applied Biomaterials*, in press
7. Galvin AL, Tipper JL, Jennings LM, Stone MH, Jin ZM, Ingham E and Fisher J (2006) Wear and biological activity of highly crosslinked polyethylene in the hip under low serum protein concentrations, *Journal of Engineering in Medicine*, Proceedings of the Institution of Mechanical Engineers, in press
8. Liu F, Jin ZM, Roberts, P and Grigoris and P (2006) Effect of Bearing Geometry and Structure Support on Transient Elastohydrodynamic Lubrication of Metal-on-Metal Hip Implants, *Journal of Biomechanics*, in press
9. Jin ZM (2006) Theoretical Studies of Elastohydrodynamic Lubrication of Artificial Hip Joints, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, in press
10. Jin ZM, Williams S, Tipper JT, Ingham E and Fisher J (2006) Tribology of Hip Joints from Natural Hip Joints, Cartilage Substitution, Artificial Replacements to Cartilage Tissue Engineering, *Journal of Biomedical Science and Engineering*, 1, 69-81
11. Luo JB, He Y, Zhong M and Jin ZM (2006) Gas bubble phenomenon in nanoscale liquid film under external electric field , *APPLIED PHYSICS LETTERS* 89 (1), Art. No. 013104
12. El-Deen M, Garcia-Finana M and Jin ZM (2006) Effect of UHMWPE thickness on contact mechanics in total knee replacement, *Journal of Engineering in Medicine*, Proceedings of the Institution of Mechanical Engineers, 220(7), pp. 733-742
13. Liu F, Jin ZM, Roberts P and Grigoris P (2006) Importance of Head Diameter, Clearance and Cup Wall Thickness on Elastohydrodynamic Lubrication Analysis of Metal-on-Metal Hip Resurfacing Prostheses, *Journal of Engineering in Medicine*, Proceedings of the Institution of Mechanical Engineers, 220(6):695-704
14. Bell CJ, Carrick LM, Katta J, Jin Z, Ingham E, Aggeli A, Boden N, Waigh TA, Fisher J (2006) Self-assembling peptides as injectable lubricants for osteoarthritis. *J Biomed Mater Res A*, 78(2):236-46
15. Liu F, Jin ZM and Dowson D (2006) An Investigation into the Effect of a Sandwich Acetabular Cup Upon Lubricant Film Thickness in Metal-on-Metal Total Hip Replacements, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, 220(3), 151-158
16. Graindorge S, Ferrandez W, Ingham E, Jin ZM and Fisher J (2006) The Role of the Surface Amorphous Layer of Articular Cartilage in Joint Lubrication, *Journal of Engineering in Medicine*, Proceedings of the Institution of Mechanical Engineers, 220(5), 597-607.
17. Jalali-Vahid D, Jin ZM and Dowson D (2006) Effect of Start-Up Conditions on Elastohydrodynamic Lubrication of Metal-on-Metal Hip Implants, *Journal of Engineering Tribology*, Proceedings of the Institution of Mechanical Engineers, 220(3), 143-150
18. Williams S, Jalali-Vahid D, Jin ZM, Stone M, Ingham E and Fisher J (2006) Effect of Swing Phase Load on Metal-on-Metal Hip Lubrication, Friction And Wear, *Journal of Biomechanics*, 39(12):2274-81
19. Liu F, Jin ZM, Hirt F, Rieker C, Roberts P and Grigoris P (2006) Transient Elastohydrodynamic Lubrication Analysis of Metal-on-metal Hip Implant Under Simulated Walking Conditions, *Journal of Biomechanics*, 39, 905-914
20. Galvin A, Kang L, Tipper J, Stone M, Ingham E, Jin ZM and Fisher J (2006) Wear of Crosslinked Polyethylene Under Different Tribological Conditions, *Journal of Materials Science: Materials in medicine*, 17(3):235-43
21. Dowson D and Jin ZM (2006) Tribology of Metal-on-Metal Hip Implants, *Journal of Engineering in Medicine*, Proceedings of the Institution of Mechanical Engineers, 220(2), 107 - 118

22. Grigoris P, Roberts P, Panousis K and Jin ZM (2006) Hip Resurfacing Arthroplasty: the Evolution of Contemporary Designs, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 220(2), 95-105
23. Jin ZM, Meakins S, Morlock MM, Parsons P, Hardaker C, Flett M and Isaac G (2006) Deformation of Press-fitted Metallic Resurfacing Cups: Part 1 Experimental Simulation, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 220(2), 299 - 309
24. Yew A, Jin ZM, Donn A, Morlock MM and Isaac G (2006) Deformation of Press-fitted Metallic Resurfacing Cups: Part 2 Finite Element Modelling, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 220 (2), 311 - 319
25. Jin ZM, Stone MS, Ingham E and Fisher J (2006) Biotribology, *Current Orthopaedics*, 20, 32-40.
26. Kang L, Galvin AL, Jin ZM and Fisher J (2006) A Simple Fully Integrated Contact-coupled Wear Prediction of Ultra-high Molecular Weight Polyethylene Hip Implants, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 220, 33-46.
27. Graindorge S, Ferrandez W, Jin ZM, Fisher J, Ingham E, Grant C and Twigg P (2005) Biphasic Surface Amorphous Layer Lubrication of Articular Cartilage, *Medical Engineering and Physics*, 27(10), 836-44
28. Jin and Dowson (2005) Elastohydrodynamic Lubrication in Biological Systems, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 219, 367-380.
29. Liu F, Jin ZM, Hirt F, Rieker C, Roberts P and Grigoris P (2005) Effect of Wear of Bearing Surfaces on Elastohydrodynamic Lubrication of Metal-on-Metal Hip Implants, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 219, 319-328.
30. Liu F, Udofia IJ, Jin ZM, Hirt F, Rieker C, Roberts P and Grigoris P (2005) Comparison of Contact Mechanics Between a Total Hip Replacement and a Hip Resurfacing with a Metal-on-Metal Articulation, *Journal of Mechanical Engineering Science, Proceedings of the Institution of Mechanical Engineers*, 219, 727-732.
31. Wang FC and Jin ZM (2005) Elastohydrodynamic Lubrication Modelling of Artificial Hip Joints Under Steady-state Conditions, *Journal of Tribology, Trans. ASME*, 127, 729-739.
32. Yang RR, Cui J, Jin ZM and Dowson D (2005) Transient Elastohydrodynamic Analysis of Elliptical Contacts. Part 2: Thermal and Newtonian Lubricant Solution, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 219, 187-200
33. Tipper JL, Ingham E, Jin ZM and Fisher J (2005) The science of metal-on-metal articulation, *Current Orthopaedics*, 19 (4): 280-287
34. F Liu, FC Wang, ZM Jin, F Hirt, C Rieker and P Grigoris (2004) Steady-State Elastohydrodynamic Lubrication Analysis of a Metal-on-Metal Hip Implant Employing a Metallic Cup With an UHMWPE Backing, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 218, 261-270.
35. Udofia IJ, Yew A and Jin ZM (2004) Contact Mechanics Analysis of Metal-on-Metal Hip Resurfacing Prostheses, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 218, 293-305.
36. Wang FC and Jin ZM (2004) Prediction of Elastic Deformation of Acetabular Cup and Femoral Head for Lubrication Analysis of Artificial Hip Joints, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 218, 201-209
37. Z M Jin, P Yang, J Cui and D Dowson (2004) Transient Elastohydrodynamic Analysis of Elliptical Contacts Part 1: Isothermal and Newtonian lubricant solution, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 218, 211-224.
38. Yang P, Jin ZM, Liu F and Dowson D (2004) On the Time dependent, Thermal and Non-Newtonian Elastohydrodynamic Lubrication of Line Contacts Subjected to Normal and Tangential Vibrations, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 218(2), 71-82.
39. Xiong DS and Jin ZM (2004) Tribological Properties of Ion Implanted UHMWPE against Si₃N₄ under Different Lubrication Conditions, *Surface and Coatings Technology*, 182, 149-155.
40. Mirghany M and Jin ZM (2004) Prediction of Scratch Resistance of Cobalt Chromium Alloy Bearing Surface, Articulating Against UHMWPE, Due to 3rd Body Wear Particles, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 218(1), 41-50.
41. Yew A, Udofia I, Jagatia M and Jin ZM (2004) Analysis of Elastohydrodynamic Lubrication in McKee-Farrar Metal-on-Metal Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 218(1), 27-34
42. Mak MM and Jin ZM (2004) Effect of Acetabular Cup Position on the Contact Mechanics of Ceramic-On-Ceramic Hip Joint Replacements, *Key Engineering Materials*, 254/256, 639-642.
43. Wang, FC, Jin, Z M, McEwen, H M J and Fisher J (2003) Microscopic Asperity Contact and Deformation of UHMWPE Bearing Surfaces, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 217, 477-490.
44. Yew A, Jagatia M, Ensaff H and Jin ZM (2003) Analysis of Contact Mechanics in McKee-Farrar Metal-on-Metal Hip Implants, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 217, 333-340.
45. Jalali-Vahid D, Jin ZM and Dowson D (2003) Iso-viscous Elastohydrodynamic Lubrication of Circular Point Contacts, with Particular Reference to Metal-on-Metal Hip Implants, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 217, 397-402
46. Jalali-Vahid D, Jin ZM and Dowson D (2003) Elastohydrodynamic Lubrication Analysis of Hip Implants with Ultra High Molecular Weight Polyethylene Cups Under Transient Conditions, *Journal of Mechanical Engineering Science, Proceedings of the Institution of Mechanical Engineers*, 217, 767-777.
47. Virdee SS, Wang FC, Xu H and Jin ZM (2003) Elastohydrodynamic Lubrication Analysis of a Functionally Graded Layered Bearing Surface, with Particular Reference to "Cushion Form Bearings" for Artificial Knee Joints, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 217, 191-198
48. Liu F, Jin ZM, Grigoris P, Hirt F and Rieker C (2003) Contact Mechanics of Metal-on-Metal Hip Implants Employing a Metallic Cup With an UHMWPE Backing, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 217, 207-213.

49. Udofia, IJ and Jin ZM (2003) Elastohydrodynamic Lubrication Analysis of Metal-on-Metal Hip Resurfacing Prostheses, *Journal of Biomechanics*, 36(4), 537 - 544.
50. Mak MM and Jin ZM (2002) Analysis of Contact Mechanics and Lubrication in Ceramic-on-Ceramic Hip Joint Replacements, *Key Engineering Materials*, 218-220, 531-534.
51. Mak MM, Besong AA, Jin ZM and Fisher J (2002) Effect of Micro-Separation on Contact Mechanics in Ceramic-on-Ceramic Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 216, 403-408
52. Mak MM and Jin ZM (2002) Analysis of Contact Mechanics in Ceramic-on-Ceramic Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 216, 231-236
53. Virdee SS and Jin ZM (2002) Contact Mechanics of a Graded Layered Bearing Surface for Knee Prosthesis, *International Journal of Applied Mechanics and Engineering*, 7(3), 1025-1032
54. Udofia IJ and Jin ZM (2002) Lubrication Analysis of Metal-on-Metal Hip Joint Prostheses in a Free Pendulum Machine, *International Journal of Applied Mechanics and Engineering*, 7(3), 1015-1024
55. Jagatia M and Jin ZM (2002) Analysis of Elastohydrodynamic Lubrication in a Novel Metal-On-Metal Hip Joint Replacement, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 216, 185-193.
1. Jalali-Vahid D and Jin ZM (2002) Transient Elastohydrodynamic Lubrication Analysis of UHMWPE Hip Joint Replacements, *Journal of Mechanical Engineering Science, Proceedings of the Institution of Mechanical Engineers*, 216, 409-420.
56. Jin ZM (2002) Analysis of Mixed Lubrication in Metal-on-Metal Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 216, 85-89
57. Jagatia M and Jin Z M (2001) Elastohydrodynamic lubrication of metal-on-metal hip prosthesis under steady-state Entraining Motion. *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 215, 531-541.
58. Besong AA, Jin ZM and Fisher J (2001) Importance of Pin Geometry on Pin-on-Plate Wear Testing of Hard-on-Hard Bearing Materials for Artificial Hip Joints, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 215, 605-610.
59. Besong AA, Farrar R and Jin ZM (2001) Contact Mechanics of a Novel Metal-on-Metal Total Hip Replacement. *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 215, 543-548.
60. Jalali-Vahid D, Jagatia M, Jin ZM and Dowson D (2001) Prediction of Lubricating Film Thickness in a Ball-in-socket Model with a Soft Lining Representing Human Natural and Artificial Hip Joints, *Proceedings of the Institution of Mechanical Engineers, Journal of Engineering Tribology*, 215, 363-372.
61. Jagatia M, Jalali-Vahid and Jin Z M (2001) Elastohydrodynamic Lubrication Analysis of UHMWPE Hip Joint Replacements Under Squeeze-film Motion, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 215, 141-152.
62. Jalali-Vahid D, Jagatia M, Jin Z M and Dowson D (2001) Prediction of Lubrication Film Thickness in UHMWPE Hip Joint Replacements, *Journal of Biomechanics*, 34, 261-266.
63. Jin Z M, Firkins P, Farrar R and Fisher J (2000) Analysis and Modelling of Wear of Cobalt Chrome Alloys in Pin-on-plate Test for Metal-on-metal Total Hip Replacement, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 214, 559-568.
64. Jin Z M (2000) A General Axisymmetric Contact Mechanics Model for Layered Surfaces, with Particular Reference to Artificial Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 214, 425-435.
65. Kushwaha M, Rahnejat H and Jin Z M (2000) Valve-train Dynamics: a Simplified Tribo-elasto-multi-body Analysis, *Journal of Multi-body Dynamics, Proceedings of the Institution of Mechanical Engineers*, 214, 95-110.
66. Jin Z M, Pickard JE, Forster H, Ingham E and J Fisher (2000) Frictional Behaviour of Bovine Articular Cartilage, *Biorheology*, 37, 57-63.
67. Jin Z M (2000) Elastohydrodynamic Lubrication of Circular Point Contact for a Compliant Layered Surface Bonded to a Rigid Substrate – Part 1 theoretical formulation and numerical method, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 214, 267-279.
68. Jin Z M (2000) Elastohydrodynamic Lubrication of Circular Point Contact for a Compliant Layered Surface Bonded to a Rigid Substrate – Part 2 numerical results, *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 214, 281-289.
69. Jin Z M, Heng S M, Ng H W and Auger D D (1999) An Axisymmetric Contact Model of Ultra High Molecular Weight Polyethylene Cups against Metallic Femoral Heads for Artificial Hip Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 213, 317-327.
70. Jalali-Vahid D, Rahnejat H and Jin Z M (1999), Elastohydrodynamic Solution for Concentrated Elliptical Contact of Machine Elements under Combined Entraining and Squeeze Film Motion. *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 212, 401-411.
71. Jin Z M and Dowson D (1999) A Full Numerical Analysis of Hydrodynamic Lubrication in Artificial Hip Joint Replacements Constructed from Hard Materials, *Journal of Mechanical Engineering Science, Proceedings of the Institution of Mechanical Engineers*, 213, 355-370.
72. Naghieh GR, Rahnejat H and Jin ZM (1999) Characteristics of Frictionless Contact of Bonded Elastic and Viscoelastic Layered Solids, *Wear*, 232, 243-249.
73. Jalali-Vahid D, Rahnejat H and Jin Z M (1998) Comparison between Experiments and Numerical Solutions for Isothermal Elastohydrodynamic Point Contacts, *J Phys, D: Appl Phys*, 31, 2725-2732.
74. Naghieh G R, Jin and Z M and Rahnejat H (1998) Contact Characteristics of Viscoelastic Bonded Layers, *Applied Mathematical Modelling*, 22, 569-581.
75. Bigsby R J A, Auger D, Jin Z M and Fisher J (1998) A Comparative Tribological Study of the Wear of Composite Cushion Cups in a Physiological Hip Joint Simulator, *Journal of Biomechanics*, 31, 363-369.
76. Jin Z M, Dowson D, Fisher J, Ohtsuki N, Murakami T, Higaki H and Moriyama S (1998) Prediction of Transient Lubricating Film Thickness in Knee Prostheses with Compliant Layers, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 212, 157-164.

77. Stewart T, Jin Z M and Fisher J (1998) Analysis of Contact Mechanics for Composite Cushion Knee Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 212, 1-10.
78. Stewart T, Jin Z M and Fisher J (1997) Friction of Composite Cushion Bearings for Total Knee Joint Replacements Under Adverse Lubrication Conditions, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 211, 451-465.
79. Jin Z M and Dowson D (1997) A General Analytical Solution to the Problem of Microelastohydrodynamic Lubrication of Low Elastic Modulus Compliant Bearing Surfaces Under Line Contact Conditions, *Journal of Mechanical Engineering Science, Proceedings of the Institution of Mechanical Engineers*, 211, 265-272.
80. Jin Z M, Dowson D and Fisher J (1997) Analysis of Fluid Film Lubrication in Artificial Hip Joint Replacements with Surfaces of High Elastic Modulus, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 211, 247-256.
81. McClure G, Jin Z M, Fisher J and Tighe B J (1996) Determination of Lubricating Film Thickness for Permeable Hydrogel and Non-permeable Polyurethane Layers Bonded to a Rigid Substrate with particular Reference to Cushion Form Hip Joint Replacements, *Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 210, 89-93.
82. Stewart T, Jin Z M, Shaw D, Auger DD, Stone M and Fisher J (1995) Experimental and Theoretical Study of the Contact Mechanics of Five Total Knee Joint replacements, *Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 209, 225-231.
83. Jin Z M, Dowson D and Fisher J (1995) Contact Pressure prediction in Total Knee Joint Replacements. Part 2: Application to the Design of Total Knee Joint Replacements, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 209, 9-15.
84. Jin Z M, Dowson D and Fisher J (1995) Contact Pressure prediction in Total Knee Joint Replacements. Part 1: General Elasticity Solution for Elliptical Contacts, *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 209, 1-8.
85. Jin Z M, Dowson D, Fisher J, Rimmer D, Wilkinson R and Jobbins B (1994) Measurement of Lubricating Film Thickness in Low Elastic Modulus Lined Bearings, With particular Reference to Models of Cushion Form Bearings for Total Joint Replacements - Part 2 Squeeze-film Motion. *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 208, 213-217.
86. Jin Z M, Dowson D, Fisher J, Rimmer D, Wilkinson R and Jobbins B (1994) Measurement of Lubricating Film Thickness in Low Elastic Modulus Lined Bearings, With particular Reference to Models of Cushion Form Bearings for Total Joint Replacements - Part 1 Steady State Entraining Motion. *Journal of Engineering Tribology, Proceedings of the Institution of Mechanical Engineers*, 208, 208-212.
87. Auger D D, Dowson D, Fisher J and Jin Z M (1993) Friction and Lubrication in Cushion Form Bearings for Artificial Hip Joints. *Journal of Engineering in Medicine, Proceedings of the Institution of Mechanical Engineers*, 207, 25-33.
88. Jin Z M, Dowson D and Fisher J (1994) A Parametric Analysis of the Contact Stress in UHMWPE Acetabular Cups, *Medical Engineering and Physics*, 16(5), 398-405.
89. Jin Z M, Dowson D and Fisher J (1993) Minimum and Central Film Thickness Formulae for Incompressible Elastic Layered Surface Firmly Bonded to a Rigid Substrate under Entraining Motion, *Wear*, 170, 281-284.
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