REFERENCIAS

1 Garvie, R. C., Hannink, R. H. y Pascoe, R. T., "Ceramics Steel", *Nature (London)*, 258, 703-4, (1975).

2 Green, D. J., Hannink, R. H. J. y Swain, M. V., "Transformation of ceramics", *CRC Press Inc., Florida*, (1989).

3 Heuer, A. H. y Ruhle., "M. Phase Transformation in ZrO_2 Containing Ceramics: I, The Instability of c-ZrO_2 and the Resulting Diffusion-Controlled Reactions", *in advances in ceramics: Science and technology of Zirconia II*, (Eds N. Clausen, M. Ruhle and A. H. Heuer.), Am. Ceram. Soc., Columbus OH, (1981), pp. 1-13.

4 Scott, H. G., "Phase Relationship in the Zirconia-Yttria System", *J. Mater. Sci.*, 10, 1527-35, (1975).

5 Miller, R. B., Smialek, J. L. y Garlick, R. G., "Phase Stability in Plasma-Sprayed Partially Stabilized Zirconia-Yttria", *en Advances in Ceramics Vol. 3*, (Eds. L. W. Hoobs y A. H. Heuer), *The American Society, Columbus*, OH, pp 241-53, (1981).

6 Casellas, D.,"Influencia de la microestructura en la fatiga y fractura de circonas estabilizadas con itria y desarrollo y caracterización mecánica de materiales Y-TZP/PSZ", *Tesis doctoral, UPC Barcelona*, (2000).

7 Mecartney, M. L., "Influence of an Amorfous Second Phase on the Properties of Yttria-Stabilized Tetragonal Zirconia Polycrystal(Y-TZP)", *J. Am. Ceram. Soc.*, 70, 54-8, (1987).

8 Matsui, M., Soma, T. y Oda, I., "Effects of Microstructure on the Strength of Y-TZP Components", *en Advances in Ceramics: Science and Technology of Zirconia II,* (Eds. N. Clausen, M Rhule y A. H. Heuer), *Am. Ceram. Soc., Columbus, OH*, pp. 371-80, (1984).

9 Tsukuma, K., Kabota, Y. y Tsukidate, T., "Thermal and Mechanical Properties of Y_2O_3-Stabilized Zirconia Polycrystal", e*n Advances in Ceramics: Science and Technology of Zirconia II,* (Eds. N. Clausen, M Rhule y A. H. Heuer), *Am. Ceram. Soc., Columbus, OH*, pp. 382-90, (1984).

10 Ruhle, M. y Heuer, A. H., "Phase Transformation in ZrO_2-Containing Ceramics: II, The Martensitic Reaction", e*n advances in ceramics: Science and technology of Zirconia II,* (Eds N. Clausen, M. Ruhle and A. H. Heuer.), *Am. Ceram. Soc*., Columbus OH, pp. 14-32, (1981).

11 Heuer, A. H., Chaim, R. y Lanteri, V., "Review: Phase Transformation and Microestructural Characterization of Alloys in the System Y_2O_3-ZrO_2", e*n advance in ceramics: Volume 24A Science and technology of Zirconia III*, (Eds. S. Somiya, N. Yamamoto y H. Yanagida), Am. Ceram. Soc., Westerville OH, pp 3-20, (1988).

12 Heuer, A. H. y Ruhle, M., "Phase Transformation in ZrO_2 Containing Ceramics: I, The Instability of c-ZrO_2 and the Resulting Diffusion-Controlled Reactions", e*n advances in ceramics: Science and technology of Zirconia II,* (Eds N. Clausen, M. Ruhle and A. H. Heuer), Am. Ceram. Soc., Columbus OH, pp. 1-13, (1981).

13 Becher, P. F. y Swain, M. V., "Grain-Size Dependant Transformation Behavior in Polycrystalline Tetragonal Zirconia", *J. Am. Ceram, Soc*., 75, [3], 493-502, (1992).

14 Choundry, M. A. y Crocker, A. G., "Theory of Twinning and Transformation Modes in Zirconia", e*n advances in ceramics: Science and technology of Zirconia II*, (Eds N. Clausen, M. Ruhle and A. H. Heuer.), Am. Ceram. Soc., Columbus OH, pp. 46-53, (1981).

15 Swain, M. V., "Grain Size Dependence of Toughness and Transformability of 2% mol Y-TZP", *J. Mater. Sci. Lett.*, [5] 1159-62 (1986).

16 Lange, F. F., "Transformation-Toughened ZrO_2 : Correlations between Grain Size Control and Composition in the System ZrO_2-Y_2O_3", *J. Am. Ceram. Soc.*, 69, [3], 240-42, (1986).

17 Ruiz, L. y Readey, M. J., "Effect of Heat Tratment on Grain Size Assemble, and Mechanical Properties of 3 mol % Y-TZP", *J. Am. Ceram, Soc.*, 79, [9], 2331-40, (1996).

18 Rice, R. W., "Review . Ceramic Tensile Strength-Grain Size Relations: Grain Size, Slopes and Branch Intersections", *J. Mater. Sci.*, 32, 1673-92, (1997).

19 Evans, A. G., "A Dimension Analysis of the Grain-Size Dependence of Strength", *J. Am. Ceram. Soc.*, 63, [1-2], 115-16, (1980).

20 Weibull, W., "A Statistical Distribution Function of Wide Applicability", *J. Appl. Mech.*, 18, 253-62, (1951).

21 Abernethy, R., "The New Weibull Handbook, *2nd edition* (1996).

22 Rice, R. W., "Pores as Fracture Origin in Ceramics", *J. Mater. Sci.*, 19, 895-914, (1984).

23 Hannink, R. J., “Growth Morphology of the Tetragonal for Turbine Engines”, *J. Mater. Sci.*, 13, 2487-96, (1978).

24 Evans, A. G., Burlingame, N., Drory, M. y Kriven, W. M., “Martensitic Transformation in Zirconia Particle Size Effects and Toughening”, *Acta Metall.*, 29, 447, (1981).

25 McMeeking, R. y Evans, A. G., “Mechanics of Transformation Toughening in Brittle Materials”, *J. Am. Ceram. Soc.*, 65, 242-6, (1982).

26 Lambropolos, J. C., “Effects of Nucleation on Transformation Toughening in Brittle Materials”, *J. Am. Ceram. Soc.*, 69, 218-22, (1986).

27 Marshall, D. B., “Crack Shielding in Ceria-Partially-Stabilized Zirconia”, *J. Am. Ceram. Soc*., 73, 3119-21, (1990).

28 Guiu, F., Reece, M. J. y Vaughan, D. A. J., “Cyclic Fatigue of Ceramics”, *J. Mater. Sci*., 26, 2659-86, (1991).

29 Guiu, F. y Reece, M. J., “Role of Crack-Bringing Ligaments in the Cyclic Fatigue Behavior of Alumina”, *J. Am. Ceram. Soc*., 75, 2976-84, (1992).

30 Hoffman, M., Mai, Y. W., Wakayama, S., Kawahara, M. y Kishi, T., “Crack-Tip Degradation Processes Observed During in situ Cyclic Fatigue of Partially Stabilized Zirconia”, *J. Am. Ceram, Soc*., 78, 2801-10, (1995).

31 Evans, A. G. y Faber, T., “On the Crack Growth Resistance of Microcraking Brittle Materials”, *J. Am. Ceram. Soc*., 67, 255-60, (1984).

32 Alcalá, J., Gonzáles, J. y Anglada, M. J., "Propagación de Grietas en Presencia de Tensiones Residuales de Indentación en Materiales Cerámicos: Influencia de la Velocidad de Aplicación de la Carga", *Anales de mecánica de la fractura* vol 11, (1994).

33 Lawn B. R., "Fracture Mechanics of Brittle Solids", second edition, Cambrige University Press, UK, (1995).

34 Kaliszewski, M. S., Behrens, G., Heuer, A. H., Shaw M. C., Marshall., D. B., Dransmann., Steinbrech, R. W., Pajares A., Guiberteau, F., Cumbrera, F. L. y Domínguez-Rodriguez, A., "Indentation Studies on Y_2O_3-Stabilized ZrO_2 : I, Development of Indentation-Induced Cracks", *J. Am. Ceram. Soc.*, 77, [5], 1185-93, (1994).

35 Pajares, A. Guiberteau, F., Cumbrera, F. L. y Domínguez-Rodriguez, A., "Un Modelo para Explicar la Configuración de Fisuras Generadas Mediante Ensayos Vickers a Diferentes Cargas en 4Y-PSZ" *Anales Mec. Fract*., 9, 22-29, (1992).

36 Lawn, B. R. y Swain, M. V., "Microfracture Beneath Point Indentation in Brittle Solids", *J. Mater. Sci*., 10, 113-22, (1975).

37 Cook, R. F. y Pharr, G. M., "Direct Observation and Analysis of Indentation Cracking in Glasses and ceramics", *J. Am .Ceram. Soc*., 4, [73], 787-817, (1990).

38 Antist, G. R., Chantikul, P., Lawn, B. R. y Marshall, D. B., "A Critical Evaluation of Indentation Technique for Measurement Fracture Toughness: II, Direct Crack Measurement", *J. Am. Ceram. Soc*., [64], 9, 533-538, (1981).

39 Laugier, M. T., "The Elastic/Plastic Indentation of Ceramics", *J. Mater. Sci. Lett.*, 4, 1539-1541, (1985).

40 Niihara, K., Morena, R. y Hasselamn, D. P. H., "A Fracture Mechanics Analysis of Indentation-Induced Palmqvist Crack in Ceramics", *J. Mater. Sci. Lett*., 2, 221-23, (1983).

41 Anderson, R. M. y Braun, L. M., "Technique for Curve R Determination of Y-TZP using Indentation-Produced Flaws", *J. Am. Ceram. Soc.*, [73], 10, 3059-62, (1990).

42 Anstis, P., Chantikul, B. R., Lawn, B. R. y Marshall, D. B., "A Critical Evaluation of Indented Techniques for Measuring Fracture Toughness: I, Direct Crack Measurements", *J. Am. Ceram. Soc*., 9, [64], 533-39, (1981).

43 Evans, A. G. y Charles, E.A., "Fracture Toughness Determination by Indentation", *J. Am. Ceram. Soc*., 59, 371-72, (1976).

44 Swain, M. V., "Grain dependece of Toughness and Trasformability of 2 mol % Y-TZP Ceramics", *J. Mater. Sci. Lett*, 5, 1159, (1986).

45 Cook, R.F., Brawn, L.M. y Cannon, W.R., "Trapped Crack at Indentation: Part I Experiments on Yttria-Tetragonal Zirconia Policrystals", *J. Mater. Sci*. 29, 2133-42, (1994).

46 Cook, R. F. y Braun, L. M., "Trapped Crack at Indentation: Part II Fracture Mechanics Model", *J. Mater. Sci*., 29, 2192-2204, (1994).

47 Chantikul, P., Anstis, G.R., Lawn, B.R. y Marshall, D.B., "A Critical Evaluation of Indentation Techniques for Measuring Fracture Toughness: II, Strength Methods", *J. Am. Ceram. Soc.*, 64, [9], 538-46, (1981).

48 Newman, J. C. y Raju, I. S., "An Empirical Stress-Intensity Factor Equation for the Surface Crack", *Eng. Frac.Mec.*, 15, [1-2], 185-92, (1981).

49 Laugier, M. T., "The Elastic/Plastic Indentation of Ceramics", *J. Mater. Sci. Lett.*, 4, 1539-1541, (1985).

50 Quinn, G. D., Kubler, J. y Getting, R.,"Fracture Toughness of Advance Ceramics by the Surface Crack in Flexure (SCF) Method", *A VAMAS Round Robin. VAMAS Tecnical Working Area 3, Report No*. 17, ISSN 1016-2186, (1993).

51 Perry, C. H., Liu, D. W. y Ingel, R. P., "Phase Characterization of Partially Stabilized Zirconia by Raman Spectroscopy", *J. Am. Ceram. Soc*., 73, [10] 3059-62, (1990).

52 Babusshkin, O. y Lindback, T., "Diffusionless Phase Transformation in the ZrO_2-TiO_2 System", in Proceedings of the PTM-94, Pittsburg,USA, pp. 743-50, (1994).

53 Chevalier, J., Olagnon, C., y Fantozzi, "Study of the Residual Stress Field around Vickers Indentations in a 3Y-TZP", *J. Mater. Sci.*, 31, 2711-17, (1996).

54 Janhanmir, S., Xu, H. H. K. y Ives L. K., "Mechanics of Material Removal in Abrasive Machining of Ceramics", *en Machining of Ceramics and Composites*, Ed. Said Janhanmir, M. Rumulu y Phillip Koshy, Marcel Dekker, Inc, p 11-84, (1999).

55 www.international-ceramics.com/ pages/2001/12001/wolters

56 Gielisse, P. J. y Stanislao, J., "Mechanical Methods of Surface Finishing", *en The Science of Ceramics Machining and Surface Finishing*, Eds. S. J. Sneider y R. W. Rice, pp 5-35, (Publicación especial 348, *National Bureau of Standards, Washington, D.C*., (1972).

57 Imanaka, O., Fugino, S. y Mineta, S., "Direct observation of Material Removal Process During Grinding of Ceramics by Micro-flash Technique", *en The Science of Ceramics Machining and Surface Finishing*, Eds. S. J. Sneider y R. W. Rice, pp 37-43, *(Publicación especial 348, National Bureau of Standards), Washington, D.C.*, (1972).

58 Sneider, S. J. y Rice. R. W., "The Science of Ceramics Machining and Surface Finishing", pp 37-43, (*Publicación especial 348, National Bureau of Standards), Washington, D.C.*, (1972).

59 Koepke, B. G. y Stokes, R. J., "Grinding Forces and the Machining of Magnesium Oxide Crystal", *J. Mater. Sci.*, 7, 485-493, (1972).

60 Koepke, B. G., "An assessment of Surface and Subsurface Damage Introduced in Ceramics by Semifinish Grinding Operation", *en The Science of Ceramics Machining and Surface Finishing*, Eds. S. J. Sneider y R. W. Rice, pp 317-332, (*Publicación especial 348, National Bureau of Standards), Washington, D.C.*, (1972).

61 Hockey, B. J., "Observation by Transmission Election Microscopy on the Subsurface Damage Produced in Aluminium Oxide by Mechanical Polishing and Grinding", *Proc. Brit. Ceram. Soc*., 20, 95-115, (1972).

62 Becher, P. F., "Ceramics Machining and Surface Finishing" *en Treatise on Materials Science and Technology, Vol. 9 Ceramics fabrication Processes*, Eds. F. F.Y. Wang, pp 217-226, *Academic Press, N.Y.*, (1976).

63 Hollstein, T y Pfeiffer, W., "The Strength and Fracture Behaviour of Engineering Ceramics – Influence of Machining and Residual Stress", *Proceedings of the International Symposium on Ceramic Materials and Components for Engines*, p 821, (1992).

64 Hessert, R., Eigenmann, B., Vohringer, O. y Lohe D., "Fracture Mechanical Evaluation of the Effects of Grinding Residual Stresses Bending Strength of Ceramics", *Mater. Sci. Eng. A* 234-236, 1126-29, (1997).

65 Huang, H., Liu, Y., Teo, P. L. y Lai, K. H., "High Speed Deep Grinding of Tetragonal Zirconia", *SIMTech Technical Report* (PT/01/020/PM).

66 Liu, T., Latella, B.A., y Liangchi, Z., "Grinding of Ceramics: Strength, Surface Features and Grinding Conditions", *Key Eng. Mater*., 196, 53-60, (2001).

67 Pfeiffer, W., "Characterization of Near-Surface Conditions of Machinery Ceramics by use of X-Ray Residual Stress Measurement", *en Residual Stress III*, Vol. 1, *Elsevier Science Publishers*, pp. 607-612, (1992).

68 Rice, R. W., "Machining Flaws and the Strength Grain Size Behaviour of Ceramics", *en The Science of Ceramics Machining and Surface Finishing II*, Ed., B. J. Hockey and R. W. Rice, *National Bereau of Standarts Especial Publicaction, Washington, D.C*., (1979).

69 Rice, R. W., "Strength/Grain-Size Effects in Ceramics", *Proc. British. Ceram. Soc*., 20, 205-257, (1972).

70 Rice, R. W., "Microstructure Dependence of Mechanical Behaviour of Ceramics", *en Treatise on Materials Science and Technology, Vol. II, Properties and Microstructure*, Ed, R. K. MacCrone, *Academic Press N.Y.*, pp. 199-381, (1977).

71 Rice, R. W., "Fractographic Identification of Strength-Controlling Flaws and Microstructure", *Fracture Mechanics of Ceramics*, Vol. I, Eds. R. C. Bradt, D. P. H. Hasselman, and F. F. Lange, *Plenum Pub. N.Y.*, pp. 323-345, (1974).

72 Rice, R. W. y Speronello, B. K., "Effect of Microstructure on Rate of Machining of Ceramics", *J. Am. Ceram. Soc.*, 59, 330-333, (1976).

73 Rice, R. W., "Machining of Ceramics ", *en Ceramics for High Performance Applications*. Ed. J. J. Burke, A. E. Gorum y R. N. Kats, Brook Hill Publishing, pp. 287-343, (1974).

74 Kirchner, H. P. y Gruver, R. M., "Branching of Hertz Cracks", *en Fracture 1977, Vol 3*, Ed. M. R. Taplin, pp. 959-964, (1977).

75 Lawn, B. R. y Wishaw, R., "Indentation Fracture: Principles and Applications", *J. Mater. Sci*., 10, 1049-1081, (1975).

76 Kirchner, H. P., Gruver, R. M. y Walker, R. E., "Strength Effects Resulting from Simple Surface Treatments" *en The Science of Ceramics Machining and Surface Finishing*, Ed. S. J. Schneider y R. W. Rice, *NBS Especial Publication 348*, (1973).

77 Gruver, R. M. y Kirchner, H. P., "Effect of Surface Damage on the Strength of Al_2O_3 Ceramics with Compressive Surface Stresses", *J. Am. Ceram. Soc*., 57, 21-24, (1973).

78 Gruver, R. M. y Kirchner, H. P., "Effect of Environment on Penetration of Surface Damage and Remaining Strength of Al_2O_3", *J. Am. Ceram. Soc.*, 57, 220-223, (1973).

79 Marshall, D. B., Lawn, B. R., Kirchner, H. P. y Gruver, R. M., "Contact Induced Strength Degradation of Thermally Treated Alumina", *J. Am. Ceram. Soc*., 61, 271-272, (1978).

80 Annamalai, V. E., Sornakumar, T., Gokularathnam, C. V. y Krishnamurthy, R., "Efficient Grinding of Ce-TZP with SiC Wheels", *Journal of European Ceramic Society*, 11, 463-69, (1993).

81 Xu, H. H. K., Jahanmir, S. y Ives, L. K., "Effect of Grinding on Strenght of Tetragonal Zirconia and Zirconia Toughened Alumina", *Machining Science and Technology*, 1, 49-66, 1997.

82 Hocke, F., Brinksmeier, E., Evans, C., Howes, T., Inasaki, I., Minke, E., Tonshoff, H. K., Webster, J. A. y Stuff, D., "High Speed Grinding-Fundamental and State of Art in Europe, Japan y USA", *Annals of CIRP* 46, 715-24, (1997).

83 Hwang, T. W., Evans, C. J. y Malkin, S., "High Speed Grinding of Silicon Nitride with Electroplated Diamond Wheels, II: Wheel Topography and Grinding of Ceramics", *Manufacturing Science and Engineering*, ASME, MED-Vol. 10, 443-52, (1999).

84 Kruszynski. B.W. y Wójcik R., "Residual Stress in Grinding", *J. Mater. Proc. Tech.*, 109, 254-257, (2001).

85 Zhang, L.C., Suto, T., Noguchi, H. y Waida, T., "A Study of Creep Feed Grinding of Metallic and Ceramic Materials", *J. Mater. Process, techn.*, 48, 267-274, (1995).

86 Broese van Groenou, A., Maan, N. y Veldkamp, J. D. B., "Scratching Experiments on Various Ceramics Materials", *Phillip. Rep. Res.*, 30, 320-359, (1975).

87 Green, D.J., Lange, F.F, y James, M.R., "Factors Influencing Residual Surface Stresses due to a Stress-Induced Phase Transformation", *J. Am Ceram Soc.*, 66, [9], 623-629, (1983).

88 Reed, J.S. y Lejus, A., "Effect of Grinding and Polishing on near Surface Phase Transformation in Zirconia", *Mater. Res. Bull*., 12, 949-54, (1977).

89 Lange, F. F y Evans, A. G., "Erosive Damage Depth in Ceramics: A study on Metastable Tetragonal Zirconia", *J. Am .Ceram. Soc*., 62, 62-65, (1979).

90 Hasewagua, H., "Rhombohedral Phase Produced in Abraded Surface of Partially Stabilized Zirconia (PSZ)", *J. Mater. Sci. Lett*., 2, 91-93, (1983).

91 Kitano, Y., Mori, Y., Ishitani A. y Masaki, T., "A study of Rhombohedral Phase in Y-PSZ", Mater. *Res. Soc. Symp. Proc*., 78, 17-24, (1987).

92 Mitra, N., Vijayan, K., Pramila, B. N. y Biswas, K., "Phase Transformation Introduced by Mechanical and Chemical Surface Preparation of Tetragonal Zirconia Policrystals", *J. Am. Ceram. Soc*., 76, 533-35, (1993).

93 Burke, D. P. y Rainforth, W. M., "Intermediate Rhombohedral Phase Formation at the Surface of Sintered Y-TZP", *J. Mater. Sci. Lett*., 16, 883-885, (1997).

94 Tanaka, T., Isono, Y. y Ueda, S., "Influences of Surface Roughness and Phase Transformation Induced by Grinding on the Strength of ZrO_2-Y_2O_3", *Prec. Eng*., 2, 117-23, (1995).

95 Behrens, G., Dransmann, G.W. y Heuer, A.H., "On Isothermal Martensitic Transformation in 3Y-TZP", *J. Am. Ceram. Soc*., 76, [4], 1025-1030, (1993).

96 Haiyan, Z. y Zhicheng, X., "Tetragonal Domain Switching via Reversible t↔m Phase Transformation", *J. Mater. Sci. Technol*.,12, 255-60, (1996).

97 Chien, F. R., Ubic, F. J., Prakash, V. y Heuer, A. H., "Stress Induced Martensitic Transformation and Ferroelastic Deformation Adjacent Microhardness Indents in Tetragonal Zirconia Single Crystals", Acta. Mater., 6 [46], 2151-2171, (1998).

98 Bowman K. J., "Texture from Domain of Tetragonal Zirconias", *J. Am. Ceram. Soc.*, 74, [10], 2690-92, (1991).

99 Lanteri, V., Heuer, A. H., y Mitchell, T., "Tetragonal Phase in the System ZrO_2-Y_2O_3", e*n advances in ceramics: Science and technology of Zirconia II*, Eds. N. Clausen, M. Ruhle and A. H. Heuer, Am. Ceram. Soc., Columbus OH, , pp. 118-130, (1981).

100 Virkar, A.V., y Matsumoto, R. L. K., "Ferroeslatic Domain Switching as a Toughening Mechanism in Tetragonal Zirconia", *J. Am. Ceram. Soc*., 69, [10], C-224-226, (1986).

101 Virkar, A.V. y Matsumoto, R. L. K., "Toughening Mechanism in Tetragonal Zirconia Polycrystalline Ceramics", e*n advance in ceramics: Volume 24A Science and technology of Zirconia III*, Eds S. Somiya, N. Yamamoto y H. Yanagida, Am. Ceram. Soc., Westerville OH, pp 653-62, (1988).

102 Li, B.S., Chern, J.S., Bowman, K.J. y Chen, I.W., "Domain Switching as a Toughening Mechanism in Tetragonal Zirconia", *J. Am. Ceram. Soc*., 71 [7], C-361-C-364, (1988).

103 Swain, M.V. y Hannink, R. H. J., "Metastability of the Transformation in 12 mol% Ceria-Zirconia alloy: II, Grinding studies", *J. Am. Ceram. Soc*. 72, [8], 1358-64, (1989).

104 Lange, F. F., James, M. R, y Green, D. J., "Determination of Residual Surface Stresses Caused by Grinding in Polycrystalline Al_2O_3", *J. Am. Ceram. Soc*., 66, [2], C16-C17, (1983).

105 Pfeiffer, W., Rombach, M. y Sommer, E., "Assesment of Strength Dominating near Surface Characteristic of Machine Ceramics", *Fracture Machined of Ceramics*, Vol. 11, 401-412, (1996).

106 Hai-Yan, Z., "Grinding Induced t↔m Martensitic Transformation and Texture in a 12 mol % Ceria-Doped Tetragonal and Monoclinic Zirconia", *J. Mater. Sci. Lett*., 15, 606-09, (1996).

107 Hai-Yan, Z., "Correlation Between Phase Transformation and Surface Texture Induced by Grinding in Tetragonal Zirconia Polycrystals", *J. Mater. Sci. Lett*., 15, [13], 1126-28, (1996).

108 Green, D. J., Lange, F. F., y James, M. R., "Factors influencing residual surface stresses due to a stress induced phase transformation", *J. Am. Ceram. Soc*., 66, 9, 623-9, (1983).

109 Prevéy, P. S. "The Uniformity of Shot Peening Induced Residual Stress", *en Residual stress for Designer y Metallurgist., ASM*, 151-68, (1981).

110 Cullity, B. D., "Elements of X rays", *Addison-Wesley, NY*, (1978).

111 Noyan, I. C., Y Cohen, J. B., "Residual stress, measurement and interpretation", *Sprinter-Verlag, NY*, (1987).

112 Fry, A., "Sensitivity Evaluation for X Ray Diffraction Residual Stress Measurements", *NPL report MATC (A)* 104, (2002).

113 Prevéy, P. S., "Current Application of X- Ray Diffraction Residual Stress Measurement", *en Developments in Materials characterization technologies*, Eds. Vander Voort, G. y Friel, *J. ASM international*, 103-110, (1996).

114 Prevey, P. S., "X-ray Diffraction Residual Stress Techniques", *ASM Handbook*, 19**,** 380-92, (1996).

115 Eigenmann, B. y Macherauch, E., "Determination of Inhomogeneous Residual Stress in Surface Layers of Machined Engineering Ceramics by Syncrotron X Rays", *Nuclear instruments and Methods in Physics research*, 97, 92-97, (1995).

116 Sakaida, Y., Tanaka, K., Ikuhara, Y. y Suzuki, K., "X Rays Study of Residual Stress Distribution of Ground Ceramics", *JSME International*, Series A, 41, [3], 422-29, (1998).

117 Fry, T., "Residual Stress Measurement XRD Depth Profiling using Successive Material Removal", *NPL report MATC (MN)* 0.34, (2002).

118 Sikarskie, D. L., "On a Series Form of Correction to Stress Measurement using X Ray Diffraction", *AIME Transaction*, 239, 577-580, (1967).

119 Moore, M. G. y Evans, W. P., "Mathematical Correction for Stress in Removed Layer in X Ray Diffraction Residual Stress Analysis", *SAE Transaction*, 66, (1958).

120 Lawn, B. R. y Wilshaw, T.R., "Indentation Fracture: Principles and Applications", *J. Mater. Sci.*, 10, [6], 1049-81, (1975).

121 Lawn, B. R., "Fracture of Brittle Solids", Cambridge University Press, Cambridge, U.K., (1993).

122 Tabor, D., "Hardness of Metals", Clarendon, Oxford, U. K., (1951).

123 Lawn, B. R., "Indentation of Ceramics with Spheres: A Century After Hertz", *J. Am. Ceram Soc*., 81, [8], 1977-94, (1998).

124 Knehans, R. y Steinbrech, R., "Memory Effect of Crack Resistance During Slow Crack Growth in Notched Al_2O_3 Bend Specimens" *J. Mater. Sci. Lett*., 1, [8], 327-29, (1982).

125 Steinbrech, R.W., Reichl, A., y Schaarwachter, W., "R-Curve of Long Cracks in Alumina", *J. Am. Ceram. Soc*., 72, [7], 2009-15, (1990).

126 Swanson, P. L., Fairbanks, C.J., Lawn, B.R., Mai, Y. W. y Hockey, B. J., " Crack Interface Grain Bridging as a Fracture Resistance Mechanics in Ceramics: I Experimental Study in Alumina", *J. Am. Ceram. Soc*., 70, [4], 279-89, (1987).

127 Benison, S. J., Padture, N. P., Runyan, J. L. y Lawn, B. R., "Flaw insensivity ceramics", *Philos. Mag. Lett*., 64, [4], 191-95, (1991).

128 Lawn, B. R., Padture, N. P., Cai, H. y Guiberteau, F., "Making Ceramics Ductile", *Science*, 263, 1114-16, (1994).

129 Fisher-Cripps, C. y Lawn, B. R., "Indentation Stress-Strain Curves for Quasi-Ductile Ceramics", *Acta Metall*., 44, [2], 519-27, (1996).

130 Guiberteau, F., Padture, N. P., Cai, H. y Lawn, B. R., "Effect of Grain Size on Hertzian Contact in Alumina", *J. Mater. Ceram. Soc*., 77, [7], 1825-31, (1994).

131 Padture, N. P. y Lawn, B.R., "Toughness Properties of a Silicon Carbide with an In-Situ-Induced Heterogenous Grain Structure", *J. Am. Ceram. Soc*., 77, [10], 2518-22, (1994).

132 Xu, H. K., Wei, L., Padture, N. P., Lawn, B. R. y Yeckley, R. L., "Effect of Microstructural Coarsening on Hertzian Contact Damage in Silicon Nitride", *J. Mater. Sci*., 30, 869-78, (1995).

133 Pajares, A., Guiberteau, F., Lawn, B. R. y Lathabai S., "Hertzian Contact Damage in Magnesia Partially Stabilized Zirconia", *J. Am. Ceram. Soc*., 78, [4], 1083-86, (1995).

134 Cai, H., Steven, M. A., Kalceff, B., Hooks, M. y Lawn, B. R., "Deformation and Fracture of Mica-Containing Glass Ceramics in Hertzian Contacts", *J. Mater. Res*., 9, [3], 762-70, (1994).

135 Chiang, S. S., Marchall, D. B. y Evans, A. G., "The Response of Solids to Elastic/Plastic Indentation. I. Stress and Residual Stresses", *J. Appl. Phys*., 53, [1], 298-311, (1982).

136 Auerbach, F., " Measurement of Hardness", Ann. Phys. Chem., 43, 61, (1891).

137 Roesler, C., "Brittle Fractures Near Equilibrium", *Proc. Phys. Soc. London*, [433] 981-92 (1956).

138 Hannink, R. H. J. y Swain, M. V., "A Mode of Deformation in Partially Stabilized Zirconia", *J. Mater. Sci*., 16, 1428-31, (1981).

139 Fisher-Cripps A. C. y Lawn, B. R., "Stress Analysis of Contact Deformation in Quasi-plastic Ceramics", *J. Am. Ceram. Soc*., 79, [10], 2609-18, (1996).

140 Lawn, B. R, Wiederhorn, S. M. y Roberts, D. E., "Effect of Sliding Fiction Forces on the Strength of Brittle Materials", *J. Mater. Sci*., 9, 2561-69, (1984).

141 An, H. M., Padture, N. P. y Lawn, B. R., "Damage-Resistance Alumina-Based Layer Composites", *J. Mater. Res.*, 11, [1], 204-10 ,(1996).

142 Belmonte, M. y Lee, S. K., "Contact Damage in Alumina Reinforce with Silicon Carbide Platelets", *J. Mater. Sci.*, 16, 379-81, (1997).

143 Latella, B. A., Connor, B. H., Padture, N. P. y Lawn, B. R., "Hertzian Contact Damage in Porous Alumina Ceramics", *J. Am. Ceram. Soc*. 80, [4], 1027-31, (1997).

144 Timoshenko, S. y Goodier, J. N., "Theory of Elasticity"; Ch. 13. MacGrawHill, New York, (1951).

145 Lawn, B. R., Padture, N. P., Cai, H. y Guiberteau, F., "A Model for Microcrack Initiation and Propagation beneath Hertzian Contacts in Polycrystalline Ceramics", *Acta. Metall. Mater.*, 42, [5], 1683-1693, (1994).

146 Lawn B. R. y Wilshaw, T. R., "Indentation Fracture: Principles and Applications", *J. Mater. Sci.*, 10, [6], 1049-81, (1975).

147 Lee, S. K., Wuttiphan, S., Pajares, A. y Lawn, B. R., "Role of Microstructure in Hertzian Contact Damage in Silicon Nitride: I. Mechanical Characterization", *J. Am. Ceram. Soc*., 80, [9], 2367-81, (1997).

148 Lawn B. R. y Marshall, D. B., "Indentation Fracture and Strength Degradations in Ceramics"; pp. 205-29 en *Fracture Mechanics of Ceramics*, Vol. 3, Edited by R. C. Bradt, D. P. H. Hasselman, and F. F. Lange. Plenum, *N. Y.*, (1978).

149 Lawn, B R., Lee, S. K., Peterson, I. M. y Wuttiphan, S., "Model of Strength Degradation from Hertzian Contact Damage in Tough Ceramics", *J. Am. Ceram. Soc.*, 81, (6), 1509-20, (1998).

150 Liu, S. Y. y Chen, I., "Fatigue of Yttria-stabilized Zirconia: II, Crack Propagation, Fatigue Striation, and Short-Crack Behavior", *J. Am. Ceram. Soc.*, 74, [6], 1206, (1991).

151 Liu, S. Y. y Chen, I., "Fatigue Deformation Mechanism of Zirconia Ceramics", *J. Am. Ceram. Soc*., 75, [5], 1191-204, (1992).

152 Liu, T., Mai, Y. W. y Grathwohl, G., "Cyclic Fatigue Crack Propagation Behavior of 9Ce-TZP Ceramics with Different Grain Size", *J. Am. Ceram. Soc*., 76, [10], 2601, (1993).

153 Liu, S. Y. y Chen, I., "Plasticity-Induced Fatigue Damage in Ceria-Stabilized Tetragonal Zirconia Policristals", *J. Am. Ceram. Soc*., 77, [8], 2025-35, (1994).

154 Grathwohl, G. y Liu, T., "Crack Resistance and Fatigue of Transformation Ceramics: II CeO_2-Stabilize Tetragonal ZrO_2", *J. Am. Ceram. Soc*., 74 [12] 3028-34, (1991).

155 Latella, B. A., Atanasio, A. J. y Liu, T., "Fatigue Damage Mechanisms in CeO_2 Stabilized Tetragonal ZrO_2", *J. Mater. Sci. Lett.*, 21, 879-882, (2002).

156 Pajares, A., Wei, L. y Lawn, B. R., "Damage Accumulation and Cyclic Fatigue in Mg-PSZ at Hertzian Contact", *J. Mater.* Res., 10, [10], 2613-2626, (1995).

157 Marshall, D. B., y Swain, M. V., "Crack Resistance curves in Magnesia-Partially-Stabilized Zirconia", *J. Am. Ceram. Soc*., 71, [6], 399-407, (1988).

158 Guiberteau, F., Padture, N. P., Cai, H. y Lawn, B. R., "Indentation Fatigue: A simple Cyclic Hertzian Test for Measuring Damage Accumulation in Polycrystalline Ceramics", *Philos. Mag. A*., 68, (5), 1003-16, (1993).

159 Latella, B. A., Liu, T. y Atanacio, A. J., "Effect of Grain Size on Hertzian Contact Damage in 9% mol Ce-TZP Ceramics", *Journal of de European ceramics Society* 22 ,1971-1979, (2002).

160 Chen, I. W., "Implication of Transformation Plasticity in ZrO_2-Containing Ceramics: II, Elastic-Plastic Indentation", *J. Am. Ceram. Soc*., 69, 189-194, (1986).

161 Suganuma, M., "Spherical and Vickers Indentation Damage in Yttria-Stabilized Tetragonal Zirconia Polycrystals", *J. Am. Ceram. Soc*.,82, [11], 3113-20, (1999).

162 Tancret, F. y Osterstock, F., "The Vickers Indentation Technique used to Evaluate Thermal Shock Resistance of Brittle Materials", *Scripta Mater*., 37, 443-447, (1997).

163 Baudín, C., "Resistencia al Choque Térmico de Materiales Frágiles", *Anales de mecánica de la fractura VOL*., 7, (1990).

164 Hasselman, D. P. H., "Unified Theory of Thermal Shock Fracture Initiation and Crack Propagation in Brittle Ceramics", *J. Am. Ceram. Soc.*, 52, [11], (1969).

165 Hasselman, D. P. H., "Thermal Stress Resistance Parameters For Brittle Refractory Ceramics: A Compendium", *Bulletin American Ceramic Society. Vol* 49, (1970)

166 Osterstock, F., "Contact Damage Submitted to Thermal Shock: A Method to Evaluate and Simulate Thermal Shock Resistance of Brittle Materials", *Materials science and Engineering.*, (1993).

167 Fett, T., "Failure due to Semi-elliptical Surface Cracks under Arbitrary Stress Distributions", *Fatique Fract. Mech. Eng. Mater. Struct.*, 23, (2000).

168 Fett, T. y Munz, D., "Local Stress Intensity Factors for Small Semi-elliptical Cracks under Exponentially Distributed Stresses", *Engineering Fracture Mechanics*, 64, (1999).

169 Fargas, G., Casellas, D., Llanes, L. y Anglada, M., "Thermal Shock Resistance of Yttria-Stabilized Zirconia with Palmqvist Indentation Cracks", *Journal of the European Ceramic Society*, 23, (2003).

170 Fett, T., "An Analysis for the Residual Intensity Factor of Vickers Indentation Cracks". *Eng. Fract. Mech.*, 52, (1995).

171 Hayakawa, M., Nishio, K., Hamakita, J. y Onda, T., "Isothermal and Atermal Martensitic Transformation in a Zirconia-Yttria Alloy", *Mater. Sci. Eng*., 213-217, (1999).

172 Tsubakino, H. y Matsura, N., "Relationship Between Transformation Temperature and Time—Temperature—Transformation Curves of Tetragonal-to-monoclinic Martensitic Transformation in Zirconia—Yttria System", *J. Am. Ceram. Soc.*, 85,[8], 2101-106, (2002).

173 Behrens, G., Dransmann, G. W. y Heuer, A. H., "On the Isothermal Martensitic Transformation in 3Y-TZP", *J. Am. Ceram. Soc.* 76, [4], (1993).

174 de With, G. y Wagemans, H. M., "Ball on ring test revisted", *J. Am. Ceram. Soc*., 72, 1538-1541, (1989).

175 Morrell, R., McCormick, N. J., Bevan, J., Lodeiro, M. y Margeston, J., "Biaxial Disc Flexure Modulus and Strength Testing", *Bri. Ceram. Trans*., 98, 234-240, (1999).

176 Fessler, H. y Fricker, D. C., "A Theoretical Analysis of the Ring on Ring Loading Disk Test", *J. Am. Ceram. Soc*., 67, 582-588, (1984).

177 Börger, A., "Optimierung des Scheibendruckversuches für Keramiken", *Diplomarbeit am Institut für Struktur- und Funktionskeramik der Montanuniversität Leoben,* (1999).

178 Timoshenko, S. P. y Goodier, J, N., "Theory of Elasticity, 3rd edition McGraw-Hill Book Company, 1970.

179 Kirstein, A. F. y Woolley, R, M., "Symmetrical Bending of Thin Circular Elastic Plates on Equally Spaced Point Support", *J. Res. Natl. Stand., Sect. C*, 71, 1-10, (1967).

180 Vitman, F. F. y Pukh, V. P., "A Method for Determining the strength of sheet glass", Zavod. Lab., 29, 863-67, (1963).

181 Shetty, D. K., Rosenfield, A. R., McGuire, P., Bansal, G. K. y Duckworth, W. H., "Biaxial Fracture Test for Ceramics", *J. Am. Ceram. Soc*., 64, 1-4 (1981).

182 Börger, A., Supansic, P. y Danzer, R., "The ball on three balls test for strength testing of brittle discs: stress distribution in the disc", *Journal of the European Ceramic Society,* 22, 1425-1436, (2002).

183 Westergaard, H. M., "Stress in Concrete Pavements Computed by Theoretical Analysis", *Public Roads*, 7, 25-35, (1926).

184 ASTM F 394-78, "Standard Test Method for Biaxial Flexure Test (Modulus of Rupture) of Ceramics Substrates".

185 Katagiri, G., Ishida, H., Ishitani, A. y Masaki, T., "Direct Determination by a Raman Microprobe of the Transformation Zone Size in Y_2O_3-Containing Tetragonal ZrO2 Polycrystals"; en *Advances in Ceramics, Vol. 24, Science and Technology of Zirconia III*. Eds. S. Somiya, N. Yamamoto, y H. Yanagida. American Ceramic Society, Westerville, OH, pp. 537-44, (1988).

186 Garvie, R.C. y Nicholson, P.S., "Phase Analysis in Zirconia System", *J. Am. Ceram. Soc*., 55, [6], 302-305, (1972).

187 Lawn, B. R. y Fuller, E. R., "Measurement of Thin Layer Surface Stresses by Indentation Fracture", *J .Mat .Sci*, 19, (1984).

188 Green, D. J. y Maloney, B. R., "Influence of Surface Stress on Indentation Craking", *J. Am. Ceram. Soc*., 69, (1986).

189 de Portu, G. y Conoci, S., 'Simplified Equation for Evaluating the Influence of Surface Residual Stresses on the Toughness of Zirconia Ceramics", *J. Am. Ceram. Soc*., 80, (1997).

190 Chantikul, P., Anstis, G. R., Lawn, B. R. y Marshall, D. B., "A Critical Evaluation of Indentation Techniques for Measuring Fracture Toughness: II, Strength method", *J. Am. Ceram. Soc*., 65, [10], 539-43, (1981).

191 Zeng, K. y Rowcliffe, D., "Experimental Measurement of Residual Stress Field Around a Sharp Indentation in Glass", *J. Am. Ceram. Soc*, 77, (1994)

192 Fett, T. y Munz, D., "Influence of Near-Surface Residual Stresses on Strength of Ceramics", *Forschungszentrum Karlsruhe*. (2000).

193 Wunderlich, W., "Fractal Aspect of the Martensitic Transformation in Zirconia", *en The Martensitic Transformation in Science and Technology,* Eds. E. Horbogen y N. Jost, 513-518.

194 Schubert H., "Anisotropic Thermal Expansion Coefficients of Y_2O_3 Stabilized Tetragonal Zirconia", *J. Am. Ceram. Soc*., 3, [69], 270-71, (1986).

195 Adams, J. W., Nakamura, H. H., Ingel, R. P. y Rice R.W., "Thermal Expansion Behavior of Single-Crystal Zirconia", *J. Am. Ceram. Soc*., 9, [68], 228-231, (1986).

196 Hannink, R. H. J., Muddle, B. C. y Swain, M. V., "Transformation Plasticity in Tetragonal Zirconia Policrystals", en Austceram 86 Proceedings, The Australian Ceramics Society, Melbourne, Australia, pp. 145-50, (1986).

197 Ruth, R., Garret, H., Domagala, R. F. y Tallan, N. M., "The System Zirconia Hafnia", *J. Am. Ceram. Soc*., 1, [51], 23-27, (1968).

198 Kim, D. J., "Effects of Ta_2O_5, Nb_2O_5, HfO_2 Allowing on the Transformation of Y_2O_3-Stabilized Tetragonal ZrO_2", *J. Am. Ceram. Soc*., 1, [73], 115-20, (1990).

199 Ruhle, M., Clausen, N. y Heuer, A. H., "Microestructural Studies of Y_2O_3 Containing Tetragonal ZrO_2 Policrystals (Y-TZP)", *en advances in ceramics: Science and technology of Zirconia II,* Eds. N. Clausen, M. Ruhle and A. H. Heuer, Am. Ceram. Soc., Columbus OH, pp. 352-70, (1981).

200 Sato, T., Besshi, T. y Tada, Y., "Effects of Surface-Finishing Condition and Annealing on Transformation Sensitivity of a 3 mol % Y_2O_3 Stabilized Tetragonal Zirconia Surface Under Interaction of Lubrication", *Wear*, 194, 204-211, (1996).

201 Kao, H. C., Ho, F. Y., Yan, W. J. y Wei, W. J., "Surface Machining of Fine Grain Y-TZP", *J. Eur. Ceram. Soc*., 20, 2447-2455, (2000).

202 Lawn, B. R. y Marshall, D. B. "Contact Fracture Resistance of Physically and Chemically Tempered Glass Plates: a Theoretical Model", *Phys. Chem. Glasses*, 18, [1], 7-18, (1977).

203 Govila, R. K., "Strength Characterization Of Yttria-Partially-Stabilized Zirconia", *J. Mater. Sci*., 30, 2656-67, (1995).

204 Rice, R. W., "Pores as Fracture Origin in Ceramics", *J. Mater. Sci.*, 19, 895-914, (1984).

205 Govila, R. K., "Strength Characterization Of Yttria-Partially-Stabilized Zirconia", *J. Mater. Sci*., 30, 2656-67, (1995).

206 Lui, S. Y. y Chen, I. W., "Fatigue of Yttria-Stabilized Zirconia: I, Fatigue Damage, Fracture Origins, and Lifetime Prediction", *J. Am.Ceram, Soc*., 74, 1197-1205, (1991).

207 Adoue. V, "Estudio del Daño Provocado por Contacto en Circonas TZP y PSZ Estabilizadas con Itria y Magnesia", *Proyecto Final de Carrera, ETSEIB-UPC, Barcelona,* (2001).

208 Min, S. J., Eun, S. P. y Lim, H. L., "Fracture Mechanics of Alumina Ceramics by Biaxial Ball on 3 Ball Test", *J. Eur. Ceram. Soc.*, 22, 1129-1135, (2002).

209 Swain, M. V. y Rose, L. R. F., "Strength Limitations of Transformation Toughened Zirconia Alloys", *J. Am. Ceram. Soc*., 69, 7, 5118, (1986).

210 Liu, T. y Dorfschmidt, K., "Sintering Behaviour and Optimization of Partially Stabilized ZrO_2", *Annual Meeting DKG, Munich (Germany),* Oct 1998.

211 Casellas, D., Ràfols, I., Llanes L. M. y Anglada, M. J., "Fracture Toughness of Zirconia-Alumina Composites", *Int. J. Refract. Met. Hard. Mat.*, 17, 11-20, (1998).

212 Fett, T. y Munz, D., "Stress Intensity Factor and Weight Functions", *Computacional Mechanics publications*, Southampton, (1997).

213 Fett, T., "An Analysis of the Residual Intensity Factor of Vickers Indentation Cracks", *Eng. Frac. Mec.*, 52, [4], 773-76, (1995).