

Publications

Materials Systems for Extreme Environments, XMat, EP/K008749/2

Period of Grant: 01.02.2013 – 31.01.2018

1. E Zapata-Solvas, DD Jayaseelan, PM Brown and WE Lee, **Thermal Properties of La₂O₃-doped ZrB₂– and HfB₂-based Ultra-high Temperature Ceramics**, *J. Euro. Ceram. Soc.*, 33 [15-16] 3467-3472, 2013.
2. J Ye, RP Thackray, S Zhang and WE Lee, **Microstructure and Rheological Properties of Titanium Carbide Coated Carbon Black Particles Synthesized from Molten Salt**, *J. Mater. Sci.*, 48 [18] 6269-75, 2013.
3. **Winner of JECS Best Paper Award** A Paul, S Venugopal, JGP Binner, B Vaidhyanathan, ACJ Heaton and PM Brown, **UHTC–carbon fibre composites: Preparation, Oxyacetylene Torch Testing and Characterisation**, *J. Euro. Ceram. Soc.*, 33 [2] 423-432 (2013).
4. JGP Binner, B Vaidhyanathan and D Jaglin, **Microwave Heated Chemical Vapour Infiltration of SiC Powder Impregnated SiC Fibre Preforms**, *Adv. Appl. Ceram.*, 112 [4] 235-241, 2013.
5. A Paul, JGP Binner, ACJ Heaton, B Vaidhyanathan, and PM Brown, **Oxyacetylene Torch Testing and Microstructural Characterisation of Tantalum Carbide**, *Journal of Microscopy*, 250 [2] 122-129, 2013.
6. B Cui, E Zapata-Solvas, MJ Reece, C Wang and WE Lee, **Microstructure and High-Temperature Oxidation Behaviour of Ti₃AlC₂/W Composites**, *J. Am. Ceram. Soc.*, 96 [2] 584-591, 2013.
7. E Zapata-Solvas, DD Jayaseelan, P Brown and WE Lee, **Mechanical Properties of ZrB₂– and HfB₂-based Ultra-High Temperature Ceramics Fabricated by Spark Plasma Sintering**, *J. Eur. Ceram. Soc.*, 33 1373-1386, 2013.
8. S Grasso, J Poetschke, V Richter, G Maizza, Y Sakka and MJ Reece, **Low-Temperature Spark Plasma Sintering of Pure Nano WC Powder**, *J. Am. Ceram. Soc.*, 96 [6] 1702-1705, 2013.
9. S Grasso, H Yoshida, H Porwal, Y Sakka and MJ Reece, **Highly Transparent α -Alumina Obtained By Low Cost High Pressure SPS**, *Ceramics International*, 39 [3] 3243-3248, 2013.
10. D Manara, HF Jackson, C Perinetti-Casoni, K Boboridis, MJ Welland, L Luzzi and WE Lee, **The ZrC-C Eutectic Structure and Melting Behaviour: A High-temperature Radiance Spectroscopy Study**, *J. Eur. Ceram. Soc.*, 33 1349-61, 2013.
11. WE Lee, MI Ojovan and CM Jantzen (Editors), **Radioactive Waste Management and Contaminated Site Clean-up: Processes, Technologies and International Experience**, (Woodhead, 2013).
12. B Cui and WE Lee, **High-temperature Oxidation Behaviour of MAX-Phase Ceramics**, Refractories World forum, WINNER of 3rd place in Gustav Eirich Award 2012, 5 [1] 105-112, 2013.
13. WE Lee, M Gilbert, S Murphy and RW Grimes, **Opportunities for Advanced Ceramics and Composites in the Nuclear Sector**, *J. Am. Ceram. Soc.*, 96 [7] 2005-30, 2013.
14. S Grasso, Y Sakka, **Electric field in SPS: Geometry and Pulsed Current Effects**, *J. Ceram. Soc., Japan*, 1414 [121] 524-526, 2013.
15. J Ye, S Zhang and WE Lee, **Molten Salt Synthesis and Characterization of SiC Coated Carbon Black Particles for Refractory Castables Applications**, *J. Euro. Ceram. Soc.*, 33 [29] 2023-29, 2013.
16. JGP Binner, B Vaidhyanathan, D Jaglin and S Needham, **Use of Electrophoretic Impregnation And Vacuum Bagging to Impregnate Sic Powder into Sic Fibre Preforms**, *Int. J. Appl. Ceram. Techn.*, 1-11 DOI:10.1111/ijac.12143 (2013).
17. S Venugopal, A Paul, B Vaidhyanathan, JGP Binner, A Heaton, PM Brown, **Synthesis and Spark Plasma Sintering of Sub-micron HfB₂: Effect of Various Carbon Sources**, *J. Eur. Ceram. Soc.*, 34 [6] 1471–1479, 2014.

18. WE Lee, R Harrison, E Giorgi, A Maitre and O Rapaud, WG Fahrenholtz, EJ Wuchina, **Nuclear Applications for Ultra-High Temperature Ceramics and MAX Phases**, in **Ultra-High Temperature Ceramics: Materials for Extreme Environment Application**, Lee WE and Zhou Y (Eds.), Wiley (2014).
19. WG Fahrenholtz, EJ Wuchina, WE Lee and Y Zhou (Editors), **Ultra-High Temperature Ceramics: Materials for Extreme Environment Applications**, Wiley, (2014).
20. C Carney, A Paul, A Venugopal, T Parthasarathy, JGP Binner, A Katz and P Brown, **Qualitative Analysis of Hafnium Diboride Based Ultra-High Temperature Ceramics under Oxyacetylene Torch Testing at Temperatures above 2100°C**, *J. Eur. Ceram. Soc.*, 34 [5] 1045–1051, 2014.
21. Q Wang, C Hu, S Cai, Y Sakka, S Grasso and Q Huang, **Synthesis of High-Purity Ti_3SiC_2 by Microwave Sintering**, *Int. J. App. Ceram. Tech.*, 11 [5] 911-918, 2014.
22. A Paul, JGP Binner and B Vaidhyanathan, **UHTC Composites for Hypersonic Applications**, Chapter 7, in *Ultra-High Temperature Ceramics: Materials for Extreme Environment Applications*, First Edition. Edited by William G. Fahrenholtz, Eric J. Wuchina, William E. Lee and Yanchun Zhou. The American Ceramic Society. Published by John Wiley & Sons, Inc, 144-166, 2014.
23. JD Rogal, MW Finnis, A Glensk, J Neugebauer, JH Perepezko, S Schuwalow, MHF Sluiter, B Sundman, **Perspectives on Point Defect Thermodynamics**, *Physica Status Solidi B*, [251] 97-129, 2014.
24. S Grasso, T Saunders, H Porwal, O Cedillos-Barraza, DD Jayaseelan, WE Lee and MJ Reece, **Flash Spark Plasma Sintering (FSPS) of Pure ZrB_2 Powder**, *J. Am. Ceram. Soc.*, 97 [8] 2405-2408, 2014.
25. E Zapata-Solvas, DD Jayaseelan, PM Brown and WE Lee, **Effect of La_2O_3 Addition on Long-term Oxidation Kinetics of ZrB_2 -SiC and HfB_2 -SiC Ultra-high Temperature Ceramics**, *J. Euro. Ceram. Soc.*, 34 [5] 3535-3548, 2014.
26. P Badica, S Grasso, H Borodianska Sky, S Xie, P Li, P Tatarko, MJ Reece, Y Sakka and O Vasylykiv, **Tough and Dense Boron Carbide Obtained By High-Pressure (300 MPa) and Low-Temperature (1600°C) Spark Plasma Sintering**, *J. Ceram.Soc., of Japan*, 122 271-275, 2014.
27. S Venugopal, EE Boakye, A Paul, K Keller, P Mogilevsky, B Vaidhyanathan, JGP Binner, A Katz and PM Brown, **Sol Gel Synthesis and Formation Mechanism of Ultra High Temperature Ceramic: HfB_2** , *J. Am. Ceram. Soc.*, 97 [1] 92–99, 2014.
28. MI Ojovan and WE Lee, (2nd Edition, Elsevier) **An Introduction to Nuclear Waste Immobilisation**, 362 2014.
29. H Zhang, C Hu, J Lv, S Grasso, M Mishra, M Estili, Y Yamauchi, B Kim, Y Sakka, **Microstructure and Adsorption Property of Nano Carbide-derived Carbon (CDC) Synthesized at Ambient Temperature**, *Materials Letters*, 130 188-191, 2014.
30. S Grasso, T Saunders, H Porwal and MJ Reece, **Ultra-High Temperature Spark Plasma Sintering of α -SiC**, *Ceramics International*, 41 [1] 225-230, 2014.
31. R Harrison, O Ridd, DD Jayaseelan and WE Lee, **Thermophysical Characterisation Of ZrC_xN_y Ceramics Fabricated Via Carbothermal Reduction-Nitridation**, *J. Nuclear Mats.*, 454,46-53 , 2014.
32. J Gonzalez-Julian, O Cedillos, S Doring, S Nolte, O Guillon and WE Lee, **Enhanced Oxidation Resistance of ZrB_2 /SiC Composites Through *In Situ* Reaction of Gadolinium Oxide in Patterned Surface Cavities**, *J. Euro. Ceram. Soc.*, 34,4157-4166, 2014.
33. H Zhang, C Hu, J Lu, S Grasso, M Mishra, M Estili, Y Yamauchi, B Kim, Y Sakka. **Microstructure and adsorption property of nanocarbide-derived carbon (CDC) synthesized at ambient temperature**. *Materials Letters* 130 188-191 2014.
34. R Harrison, O Ridd, DD Jayaseelan and WE Lee, **Synthesis and Characterisation of ZrC_xN_y Ceramics via Carbothermic Reduction-Nitridation**, *J. Nuclear Mats.*
35. T Saunders, S Grasso, MJ Reece, **Plasma Formation during Electric Discharge (50V) through Conductive Powder Compacts**, *J.Eur. Ceram. Soc.*, 35 [3] 871–877, 2015.
36. DD Jayaseelan, E Zapata-Solvas, CM Carney, A Katz, P Brown, WE Lee, **Microstructural Evolution of HfB_2 -based Ceramics during Oxidation at 1600°C to 2000°C**, *Adv. in Applied Ceramics*. 114 [5] 277-295, 2015.

37. JGP Binner, B Vaidhyanathan, D Jaglin, S Needham, **Use of Electrophoretic Impregnation And Vacuum Bagging To Impregnate Sic Powder Into Sic Fibre Preforms**, *S. Int. J. Appl. Ceram. Tech.*, 12 [1] 212–222, 2015.
38. S Venugopal, DD Jayaseelan, A Paul, B Vaidhyanathan, JGP Binner, PM Brown, **Screw Dislocation Assisted Spontaneous Growth of HfB₂ Tubes and Rods**, *J. Am. Ceram. Soc.*, 98 [7] 2060-2064, 2015.
39. DD Jayaseelan, X Yanda, L Vandeperre, P Brown, WE Lee, **Development of Multi-Layered Thermal Protection System (TPS) For Aerospace Applications**, *Composite, Part B*, [79] 392-405, 2015.
40. N Patra, DD Jayaseelan, WE Lee, **Synthesis of Biopolymer-Derived Zirconium Carbide Powder By Facile One-Pot Reaction**, *J. Am. Ceram. Soc.*, 98 [1] 71-77, 2015.
41. HB Zhang, CF Hu, SK Sato, S Grasso, M Estili, SQ Guo, K Morita, H Yoshida, T Nishimura, TS Suzuki, MW Barsoum, BN Kim, Y Sakka, **Tailoring Ti₃AlC₂ Ceramic With High Anisotropic Physical And Mechanical Properties**, *J. Eur. Ceram. Soc.*, 35 [1] 393-397, 2015
42. CF Hu, BN Kim, YJ Park, M Estili, S Grasso, K Morita, H Yoshida, T Nishimura, SQ Guo, Y Sakka, **Nano ZrO₂-Tin Composites With High Strength And Conductivity**, *Journal of the Ceramic Society of Japan*, 123 [1434] 86-89, 2015.
43. MK Mani, G Viola, JP Hall, S Grasso, MJ Reece, **Observation of Curie Transition During Spark Plasma Sintering of Ferromagnetic Materials**, *Journal of Magnetism and Magnetic Materials*, 382 202-205, 2015.
44. AI Duff, T. Davey, D Korbmacher, A Glensk, B Grabowski, J Neugebauer, MW Finnis, **Improved Method Of Calculating *ab initio* High-Temperature Thermodynamic Properties With Application to ZrC**, *Phys. Rev. B*, [91] 214311-1-8, 2015.
45. A Duff, M Finnis, P Maugis, B Thijsse, MHF Sluiter, **MEAMfit: A Reference-Free Modified Embedded Atom Method (RF-MEAM) Energy and Force-Fitting Code**. *Phys. Commun.*, 196, 439-445, 2015.
46. DD Jayaseelan, E Zapata-Solvas, R Chater, WE Lee, **Structural and Compositional Analyses of Oxidized Layers of ZrB₂-based ceramics**, *J. Eur. Ceram. Soc.*, 35 [15] 4059–4071, 2015.
47. R Harrison, WE Lee, **Mechanism and Kinetics of Oxidation of ZrN Ceramics**, *J. Am. Ceram. Soc.*, 98, (7), 2205-2213, 2015.
48. T Saunders, S Grasso, MJ Reece, **Limiting oxidation of ZrB₂ by application of an electric field across its oxide scale**, *Journal of Alloys and Compounds*, 653, 629-635, 2015.
49. Stadelmann, B. Hughes, N. Orlovskaya, S. Grasso, M. J. Reece, **2D Raman Mapping and Thermal Residual Stresses in SiC Grains of ZrB₂-SiC Ceramic Composites**, *Ceramics International*, 41, 13630-13637, 2015.
50. T Saunders, S Grasso, MJ Reece. **Plasma Formation during Electric Discharge (50V) through Conductive Powder Compacts**. *J. Eur. Ceram. Soc.*, 35, 817-877, (2015).
51. E Zapata-Solvas, DD Jayaseelan, PM Brown, WE Lee, **Effect of Oxidation on Room Temperature Strength of ZrB₂- and HfB₂-based Ultra-high Temperature Ceramics**, *Adv. in Applied Ceramics*, 114, (8), 407- 417, 2015.
52. L Melk, JJR Rovira, F Garcia-Marro, M-L Antti, B Milsom, MJ Reece, M Anglada. **Nanoindentation and fracture toughness of nanostructured zirconia/multi-walled carbon nanotube composites**. *Ceramics International*, 41 (2, Part A), p:2453-2461, 2015
53. D Horlait, S Grasso, A Chroneos, WE Lee. **Attempts to Synthesize Quaternary MAX Phases (Zr,M)₂AlC and Zr₂(Al,A)C as a Way to Approach Zr₂AlC**. *Mat. Res. Letters*, 4, (3), 137-144, 2016
54. T Csanádi, S Grasso, A Kovalčíková, J Dusza, M Reece, **Nanohardness and Elastic Anisotropy of ZrB₂ Crystals**, *J. Eur. Ceram. Soc.*, 36, 239-242, 2016
55. T Csanádi,* , P Szommer, NQ Chinh, S Grasso, J Dusza, Mike Reece, **Plasticity in ZrB₂ Micropillars Induced by Anomalous Slip Activation**, *J. Eur. Ceram. Soc.* , 36, 389-394, 2016
56. S Grasso, T Saunders, B Milsom, H Porwal, MJ Reece, **Flash Spark Plasma sintering of α and β Silicon Carbide**, *J. Am. Ceram. Soc.*, 99 (5), 1534-1543, 2016.
57. D Horlait, SC Middleburgh, A Chroneos, WE Lee, **Synthesis and DFT Investigation of New Bismuth-Containing MAX Phases**, *Scientific Reports*, 6:18829, 2016.

58. N Patra, DD Jayaseelan, WE Lee, **Synthesis of ZrB₂/SiC Composite Powders by a Single-Step Solution Process from an Organic-Inorganic Hybrid Precursor**, *Adv. Applied Ceramics*, 115, (1), 36-42, 2016.
59. O Cedillos-Barraza, S Grasso, N Al Nasiri, DD Jayaseelan, MJ Reece, WE Lee. **Sintering Behaviour, Solid Solution Formation and Characterisation of TaC, HfC and TaC–HfC Fabricated by Spark Plasma Sintering**. *J.Eur. Ceram. Soc.*, 36, 1539-1548, 2016.
60. D Horlait, S Grasso, N Al Nasiri, PA Burr, WE Lee. **Synthesis and Oxidation Testing of MAX Phase Composites in the Cr–Ti–Al–C Quaternary System**. *J. Am. Ceram. Soc.*, 99, (2), 682-690, 2016.
61. WG Fahrenholtz, J Binner, J Zou. **Synthesis of Ultra-Refractory Transition Metal Diboride Compounds**. *J.Mater. Res*, 31, (18), 2757-2772, 2016.
62. SA Humphry-Baker, WE Lee. **Tungsten Carbide is More Oxidation Resistant than Tungsten when Processed to Full Density**. *Scripta Materialia*, 116, 67-70, 2016.
63. T Saunders, S Grasso, MJ Reece. **Ultrafast-Contactless Flash Sintering using Plasma Electrodes**. *Scientific Reports*, 6, 27222, 2016.
64. J Zou, G-J Zhang, Z-J Shen, J Binner. **Ultra-low Temperature Reactive Spark Plasma Sintering of ZrB₂-hBN Ceramics**. *J.Eur. Ceram. Society*, 36, 3637-3645, 2016.
65. S Grasso, E-Y Kim, T Saunders, M Yu, A Tudball, S-H Choi, M Reece. **Ultra-Rapid Crystal Growth of Textured SiC Using Flash Spark Plasma Sintering Route**. *Cryst. Growth. Des.*, 16, 2317-2321, 2016.
66. RW Harrison, WE Lee, **Processing and Properties of ZrC, ZrN and ZrCN Ceramics: A Review**. *Adv. Applied Ceramics*, 115, (5), 294-307, 2016.
67. R Stadelmann, M Lugovy, N Orlovskaya, P Mchaffey, M Radovic, VM Sglavo, S Grasso, MJ Reece. **Mechanical properties and residual stresses in ZrB₂–SiC spark plasma sintered ceramic composites**. *Journal of the European Ceramic Society*, 36 (7), 1527-1537, 2016.
68. Al Nasiri N, Patra N, Horlait D, Jayaseelan D, Lee W. **Thermal Properties of Rare-Earth Monosilicates for EBC on Si-Based Ceramic Composites**. *J. Am. Ceram. Soc.* 99 (2) 589-596, 2016.
69. S Grasso, T Saunders, H Porwal, B Milsom, A Tudball, MJ Reece, **Flash spark plasma sintering (FSBS) of α and β SiC**. *J. Am. Ceram. Soc.* 99 (5) 1534-1543, 2016.
70. **Winner of IOM3 Pfeil Award** A Paul, JGP Binner, B Vaidhyanathan and PM Brown. **Heat flux mapping of oxyacetylene flames and their use to characterise Cf-HfB₂ composites**, *Adv. Appl. Ceram.* 115 (3) 158-165 2016.
71. C Wang, D Wu, S Grasso, T Saunders, E Castle, H Yan, MJ Reece. **Growth of SiC platelets using contactless flash technique**. *J. Ceram. Soc. Of Japan*, 124 (9) 845-847 2016.
72. O Cedillos-Barraza, D Manara, K Boboridis, T Watkins, S Grasso, DD Jayaseelan, RJM Konings, MJ Reece, WE Lee **Investigating the highest melting temperature materials: A laser melting study of the TaC-HfC system** *Scientific Reports* 6, Article no: 37962, 2016.
73. S Kota, E Zapata-Solvas, A Ly, J Lu, O Elkassabany, A Huon, WE Lee, L Hultman, SJ May, MW Barsoum. **Synthesis and Characterization of an Alumina Forming Nanolaminated Boride: MoAlB** *Scientific Reports*, 6, Article no. 26475, 2016.
74. S Kota, E Zapata-Solvas, A Ly, J Lu, O Elkassabany, A Huon, WE Lee, L Hultman, SJ May, MW Barsoum. **Corrigendum: Synthesis and Characterization of an Alumina Forming Nanolaminated Boride: MoAlB** *Scientific Reports*, 6, Article no. 30339, 2016.
75. Y Bai, A Duff, DD Jayaseelan, R Wang, X He, WE Lee. **DFT predictions of crystal structure, electronic structure, compressibility, and elastic properties of Hf-Al-C carbides**. *J. Am. Ceram. Soc.* 99 (10) 3449-3457 2016.
76. L Larrimbe, M Pettina, K Nikbin, ELJones, AP Katz, CJ Hawkins, J De Cerbo, P Brown, LJ Vandeperre. **High Heat Flux Laser Testing of HfB₂ Cylinders**. *J. Eur. Ceram. Soc.*, 100, (1), 293-303, 2017.
77. WE Lee, N Ni, E Zapata-Solvas. **Experimental synthesis and DFT investigation of radiation tolerance of Zr₃(Al_{1-x}Si_x)C₂ MAX phases**. *J. Am. Ceram. Soc.*, 100, (4), 1377-87, 2017.
78. SA Humphry-Baker, K Peng, WE Lee. **Oxidation resistant tungsten carbide hardmetals**. *Intern. J. Refrac. Metals & Hard Materials*, 66, 135-143, 2017.

79. J Zou, V Rubio, J Binner. **Thermoablative resistance of ZrB₂-SiC-WC ceramics at 2400°C.** *Acta Materialia*, 133, 293-302, 2017.
80. W Lerdprom, S Grasso, DD Jayaseelan, MJ Reece, WE Lee. **Densification behaviour and physico-mechanical properties of porcelains prepared using spark plasma sintering.** *Advances in Applied Ceramics*, 116 (6), 307-315, 2017.
81. M Yu, S Grasso, R Mckinnon, T Saunders, MJ Reece. **Review of flash sintering: materials, mechanisms and modelling.** *Advances in Applied Ceramics*, 116 (1), 24-60, 2017.
82. E Castle, R Sheridan, W Zhou, S Grasso, A Walton, MJ Reece. **High coercivity, anisotropic, heavy rare earth-free Nd-Fe-B by Flash Spark Plasma Sintering.** *Scientific Reports*, 7, 11134, 2017.
83. L Xu, D Zhu, S Grasso, TS Suzuki, A Kasahara, M Tosa, B Kim, Y Sakka, M Zhu, C Hu. **Effect of texture microstructure on tribological properties of tailored Ti₃AlC₂ ceramic.** *J. Adv. Ceram.*, 6 (2), 120-128, 2017.
84. A Paul, V Rubio, JGP Binner, B Vaidhyanathan, ACJ Heaton, PM Brown, **Evaluation of the high temperature performance of UHTC composites,** *Int. J. Appl. Ceram. Tech.* 14 (3) 344-353 2017.
85. L Zolia, A Vincia, L Silvestronia, D Scitia, M Reece, S Grasso, **Rapid spark plasma sintering to produce dense UHTCs reinforced with undamaged carbon fibres.** *Materials & Design*, 130, 1-7, 2017.
86. S Kota, M Agne, E Zapata-Solvas, O Dezellus, D Lopez, B Gardiola, M Radovic, MW Barsoum, **Elastic properties, thermal stability, and thermodynamic parameters of MoAlB** *Phys. Rev. B* 95, 144108, 2017.
87. S Kota, E Zapata-Solvas, Y Chen, M Radovic, WE Lee, MW Barsoum, **Isothermal and Cyclic Oxidation of MoAlB in Air from 1100°C to 1400°C,** *J. Electrochem. Soc.*, 164, (13), C930-C938, 2017.
88. SA Humphrey-Baker, K Peng, WE Lee, **Oxidation Resistant Tungsten Carbide Hardmetals,** *J of Refractory Metals and Hard Materials* 66 135-143 (2017).
89. PA Burr, D Horlait, WE Lee, **Experimental and DFT Investigations of (Cr,Ti)₃AlC₂ Solid Solution Stability,** *Materials Research Letters* 5 [3] 144-157 (2017).
90. KT Faber, T Asefa, M Backhaus-Ricoult, R Brow, JY Chan, S Dillon, WG Fahrenholtz, MW Finnis, JE Garay, RE García, Y Gogotsi, SM Haile, J Halloran, J Hu, L Huang, SD Jacobsen, E Lara-Curzio, J LeBeau, WE Lee, CG Levi, I Levin, JA Lewis, DM Lipkin, K Lu, J Luo, J-P Maria, LW Martin, S Martin, G M, A Navrotsky, NP Padture, C Randall, GS Rohrer, A Rosenflanz, TA Schaedler, DG Schlom, A Sehirlioglu, AJ Stevenson, T Tani, V Tikare, S Trolier-McKinstry, H Wang, B Yildiz, **The Role of Ceramic and Glass Science Research in Meeting Societal Challenges: A Report from an NSF-Sponsored Workshop on Emerging Opportunities,** *J. Am. Ceram. Soc.* 100 1777-1803 (2017).
91. Y Bai, X Qi, A Duff, N Li, F Kong, X He, R Wang, WE Lee, **Density functional theory insights into ternary layered boride MoAlB** *Acta Materialia* 132 69-81 (2017)
92. E Zapata-Solvas, D Gómez-García, A Domínguez-Rodríguez, WE Lee, **High temperature creep of 20 vol%. SiC-HfB₂ UHTCs up to 2000°C and the effect of La₂O₃ addition.** *J. Eur. Ceram. Soc.*, 38, (1), 47-56, 2018.
93. W Lerdprom, A Bhowmik, S Grasso, E Zapata-Solvas, DD Jayaseelan, MJ Reece, WE Lee, **Impact of spark plasma sintering (SPS) on mullite formation in porcelains,** *J. Am. Ceram. Soc.*, 101 (2) 525-535, 2018.
94. A D'Angio, J Zou, JGP Binner, HB Ma, GE Hilmas, WG Fahrenholtz, **Mechanical properties and grain orientation evolution of zirconium diboride-zirconium carbide ceramics,** *J. Eur. Ceram. Soc.*, 38, 391-402, 2018.
95. J Zou, S Grasso, L-F Liu, H-B Ma, MJ Reece, JGP Binner, **Flash spark plasma sintering of HfB₂ ceramics without pre-sintering,** *Scripta Materialia* 156, 115-119, 2018.
96. SA Humphrey-Baker, R Harrison, G Greaves, A Knowles, GDW Smith, SE Donnelly and WE Lee, **A Candidate Fusion Engineering Material, WC-FeCr,** *Scripta Mat.* 155 129-33 (2018).