

JOURNAL (Peer-Reviewed) PAPERS

Journal Publications (peer-reviewed) (in reverse chronological order)

- 70) **R. S. Lima**, "Porous APS YSZ TBC Manufactured at High Powder Feed Rate (100 g/min) and Deposition Efficiency (70%): Microstructure, Bond Strength and Thermal Gradients", Journal of Thermal Spray Technology, published on-line in 2022 – open access: <https://link.springer.com/content/pdf/10.1007/s11666-021-01302-y.pdf>
- 69) R. Musalek, T. Tesar, J. Medricky, F. Lukac and **R. S. Lima**, "High Temperature Cycling of Plasma Sprayed Multilayered NiCrAlY/YSZ/GZO/YAG Thermal Barrier Coatings Prepared from Liquid Feedstocks", Journal of Thermal Spray Technology, 30(1-2) (2021) 81-96 – open access: <https://link.springer.com/article/10.1007/s11666-020-01107-5>
- 68) B. M. H. Guerreiro, **R. S. Lima**, N. Curry, M. Leitner and K. Körner, "The influence of plasma Composition in the Deposition Efficiency, Thermal Conductivity, Bond Strength and Thermal Cyclic Performance of Yttria Stabilized Zirconia (8YSZ) Thermal Barrier Coatings", Journal of Thermal Spray Technology, 30(1-2) (2021) 59-68 – open access: <https://link.springer.com/article/10.1007/s11666-021-01153-7>
- 67) K. N. Lee, D. Zhu and R. S. Lima, "Perspectives on Environmental Barrier Coatings (EBCs) Manufactured via Air Plasma Spray (APS) on Ceramic Matrix Composites (CMCs): A Tutorial Paper", Journal of Thermal Spray Technology, 30(1-2) (2021) 40-58 – open access: <https://link.springer.com/article/10.1007/s11666-021-01168-0> (invited paper - Journal Editor's Choice Article Award 2021).
- 66) **R. S. Lima**, "Perspectives on Thermal Gradients in Porous ZrO₂-7-8wt% Y₂O₃ (YSZ) Thermal Barrier Coatings (TBCs) Manufactured by Air Plasma Spray (APS)", Coatings, (2020) 10 812 1-18 (doi:10.3390/coatings10090812) – open access: <https://www.mdpi.com/805290> (invited paper).
- 65) **R. S. Lima**, B. M. H. Guerreiro, N. Curry, M. Leitner and K. Körner, "Environmental, Economical and Performance Impacts of Ar/H₂ & N₂/H₂ Plasma Sprayed YSZ TBCs", Journal of Thermal Spray Technology, 29(1-2) (2020) 74-89.
- 64) M. Aghasibeig, F. Tarasi, **R. S. Lima**, A. Dolatabadi and C. Moreau, "A Review on Suspension Thermal Spray Patented Technology Evolution", Journal of Thermal Spray Technology, 28(7) (2019) 1579-1605 (Journal Editor's Choice Article Award 2019).
- 63) **R. S. Lima**, B. M. H. Guerreiro and M. Aghasibeig, "Microstructural Characterization and Room Temperature Erosion Behavior of As-deposited SPS, EB-PVD and APS YSZ-based TBCs", Journal of Thermal Spray Technology, 28(1-2) (2019) 223-232.

- 62) **R. S. Lima** and B. R. Marple, "Insights on the High Temperature Operational Limits of ZrO₂-Y₂O₃ TBCs Manufactured via Air Plasma Spray", Journal of Materials Engineering and Performance, 26(3) (2017) 1272-1282.
- 61) L. Vernhes, C. Bekins, N. Lourdel, D. Poirier, **R. S. Lima**, D. Li and J. E. Klemberg-Sapieha, "Nanostructured and Conventional Cr₂O₃, TiO₂, and TiO₂-Cr₂O₃ Thermal-Sprayed Coatings for Metal-Seated Ball Valve Applications in Hydrometallurgy", Journal of Thermal Spray Technology, 25(5) (2016) 1068-1078.
- 60) **R. S. Lima**, B. R. Marple and P. Marcoux, "Thermal Gradient Behavior of TBCs Subjected to a Laser Gradient Test Rig: Simulating an Air-to-Air Combat Flight", Journal of Thermal Spray Technology, 25(1-2) (2016) 282-290.
- 59) **R. S. Lima**, D. Nagy and B. R. Marple, "Bond Coat Engineering Influence on the Evolution of the Microstructure, Bond Strength and Failure of TBCs Subjected to Thermal Cycling", Journal of Thermal Spray Technology, 24(1-2) (2015) 152-159.
- 58) E. Irissou, A. Dadouche and **R. S. Lima**, "Tribological Characterization of Plasma Sprayed CoNiCrAlY-BN Abradable Coatings", Journal of Thermal Spray Technology, 23(1-2) (2014) 252-261.
- 57) D. Poirier, J.-G. Legoux and **R. S. Lima**, "Engineering HVOF-sprayed Cr₃C₂-NiCr Coatings: the Effect of Particle Morphology and Spraying Parameters on the Microstructure, and High Temperature Wear Performance", Journal of Thermal Spray Technology, 22(2-3) (2013) 280-289.
- 56) C. V. Cojocar, D. Levesque, C. Moreau and **R. S. Lima**, "Performance of Thermally Sprayed Si/Mullite/BSAS Environmental Barrier Coatings Exposed to Thermal Cycling in Water Vapor Environment", Surface and Coatings Technology, 216 (2013) 215-223.
- 55) J. Mesquita-Guimarães, E. Garcia, P. Miranzo, M. I. Osendi, C. V. Cojocar and **R. S. Lima**, "Mullite-YSZ Multilayered Environmental Barrier Coatings Tested in Cycling Conditions under Water Vapour Atmosphere", Surface and Coatings Technology, 209 (2012) 103-109.
- 54) F. Tarasi, M. Medraj, A. Dolatabadi, **R. S. Lima** and C. Moreau, "Thermal Cycling of Suspension Plasma Sprayed Alumina-YSZ Coatings Containing Amorphous Phases", Journal of the American Ceramic Society, 95[8] (2012) 2614-2621.
- 53) S. Dimitrievska, M. N. Bureau, J. Antoniou, F. Mwale, A. Petit, **R. S. Lima** and B. R. Marple, "Titania-hydroxyapatite Nanocomposite Coatings Support Human Mesenchymal Stem Cells Osteogenic Differentiation", Journal of Biomedical Materials Research: Part A, 98A (2011) 576-588.
- 52) P. Fauchais, G. Montavon, **R. S. Lima** and B. R. Marple, "Engineering a New Class of Nano-based Microstructures from Agglomerated Nanostructured Particles, Suspensions and

Solutions: An Invited Review", Journal of Physics D: Applied Physics, 44(9) (2011) 093001 (53pp) (invited review paper).

- 51) C. V. Cojocaru, Y. Wang, C. Moreau, **R. S. Lima**, J. Mesquita-Guimarães, E. Garcia, P. Miranzo and M. I. Osendi, "Mechanical Behaviour of Air-plasma Sprayed YSZ Functionally Graded Mullite Coatings Investigated via Instrumented Indentation", Journal of Thermal Spray Technology, 20(1-2) (2011) 100-107.
- 50) C. V. Cojocaru, S. E. Kruger, C. Moreau and **R. S. Lima**, "Elastic Modulus Evolution and Behaviour of Si/Mullite/BSAS-based Environmental Barrier Coatings Exposed to High Temperature in Water Vapor Environment", Journal of Thermal Spray Technology, 20(1-2) (2011) 92-99.
- 49) E. Garcia, J. Mesquita-Guimarães, P. Miranzo, M. I. Osendi, C. V. Cojocaru, Y. Wang, C. Moreau and **R. S. Lima**, "Phase Composition and Microstructural Responses of Graded Mullite/YSZ Coatings under Water Vapor Environments", Journal of Thermal Spray Technology, 20(1-2) (2011) 83-91.
- 48) P. Puetz, X. Huang, **R. S. Lima**, Q. Yang and L. Zhao, "Characterization of Transient Oxide Formation on CoNiCrAlY after Heat Treatment in Vacuum and Air", Surface and Coatings Technology, 205 (2010) 647-657.
- 47) B. Jeffery, M. Peppler, **R. S. Lima** and A. McDonald, "Bactericidal Effects of HVOF-sprayed Nanostructured TiO₂ on Pseudomonas aeruginosa", Journal of Thermal Spray Technology, 19(1-2) (2010) 344-349.
- 46) **R. S. Lima**, S. Dimitrievska, M. N. Bureau, B. R. Marple, A. Petit, F. Mwale and J. Antoniou, "HVOF-sprayed Nano TiO₂-HA Coatings Exhibiting Enhanced Biocompatibility", Journal of Thermal Spray Technology, 19(1-2) (2010) 336-343.
- 45) E. Garcia, J. Mesquita-Guimarães, P. Miranzo, M. I. Osendi, Y. Wang, **R. S. Lima** and C. Moreau, "Mullite and Mullite/ZrO₂-7wt% Y₂O₃ Powders for Thermal Spraying of Environmental Barrier Coatings", Journal of Thermal Spray Technology, 19(1-2) (2010) 286-293.
- 44) **R. S. Lima** and B. R. Marple, "Toward Highly Sintering-Resistant Nanostructured ZrO₂-7wt% Y₂O₃ Coatings for TBC Applications by Employing Differential Sintering", Journal of Thermal Spray Technology, 17(5-6) (2008) 846-852.
- 43) **R. S. Lima** and B. R. Marple, "Process-Property-Performance Relationships for Titanium Dioxide Coatings Engineered from Nanostructured and Conventional Powders", Materials & Design, 29 (2008) 1845-1855.
- 42) R. Soltani, T. W. Coyle, J. Mostaghimi, **R. S. Lima**, C. Moreau, "Thermo-physical properties of plasma sprayed Yttria Stabilized Zirconia Coatings", Surface and Coatings Technology, 202 (2008) 3954-3959.

- 41) **R. S. Lima** and B. R. Marple, "Nanostructured YSZ Thermal Barrier Coatings Engineered to Counteract Sintering Effects", Materials Science and Engineering A, 485 (2008) 182-193.
- 40) W. R. Chen, X. Wu, B. R. Marple, **R. S. Lima**, P. C. Patnaik, "Pre-oxidation and TGO Growth Behaviour of an Air-Plasma-Sprayed Thermal Barrier Coating", Surface and Coatings Technology, 202 (2008) 3787-3796.
- 39) **R. S. Lima**, S. E. Kruger, B. R. Marple, "Towards Engineering Isotropic Behaviour of Mechanical Properties in Thermally Sprayed Ceramic Coatings", Surface and Coatings Technology, 202 (2008) 3643-3652.
- 38) S. E. Kruger, C. Bescond, **R. S. Lima**, B. R. Marple, B. Campagne, D. Levesque, A. Blouin, J.-P. Monchalain, "Laser-Ultrasonic Evaluation of Thermal Sprayed Coatings", Journal of the Japanese Society for Non-Destructive Inspection, 57(1) (2008) 4-10.
- 37) M. Gaona, **R. S. Lima**, B. R. Marple, "Influence of Particle Temperature and Velocity on the Microstructure and Mechanical Behaviour of High Velocity Oxy-Fuel (HVOF) Sprayed Nanostructured Titania Coatings", Journal of Materials Processing Technology, 198 (2008) 426-435.
- 36) **R. S. Lima**, C. Moreau, B. R. Marple, "HVOF-Sprayed Coatings Engineered from Mixtures of Nanostructured and Submicron Al_2O_3 - TiO_2 Powders: an Enhanced Wear Performance", Journal of Thermal Spray Technology, 16(5-6) (2007) 866-872.
- 35) B. R. Marple, **R. S. Lima**, C. Moreau, S. E. Kruger, L. Xie, M. R. Dorfman, "Yttria-Stabilized Zirconia Thermal Barriers Sprayed Using N_2 - H_2 and Ar - H_2 Plasmas: Influence of Processing and Heat Treatment on Coating Properties", Journal of Thermal Spray Technology, 16(5-6) (2007) 791-797.
- 34) B. R. Marple and **R. S. Lima**, "Engineering Nanostructured Thermal Spray Coatings: Process-Property-Performance Relationships of Ceramic Based Materials", Advances in Applied Ceramics, 106(5) (2007) 265-275.
- 33) C. Bescond, S. E. Kruger, D. Levesque, **R. S. Lima**, B. R. Marple, "In-Situ Simultaneous Measurement of Thickness, Elastic Moduli and Density of Thermal Sprayed WC-Co Coatings by Laser-Ultrasonics", Journal of Thermal Spray Technology, 16(2) (2007) 238-244 (**Journal of Thermal Spray Technology 2007 Best Paper Award**).
- 32) **R. S. Lima** and B. R. Marple, "Thermal Spray Coatings Engineered from Nanostructured Ceramic Agglomerated Powders for Structural, Thermal Barrier and Biomedical Applications: A Review", Journal of Thermal Spray Technology, 16(1) (2007) 40-63 (**invited review paper**).
- 31) A. Ibrahim, **R. S. Lima**, C. C. Berndt, B. R. Marple, "Fatigue and Mechanical Properties of Nanostructured and Conventional Titania (TiO_2) Thermal Spray Coatings", Surface and Coatings Technology, 201 (2007) 7589-7596.

- 30) M. Gaona, **R. S. Lima**, B. R. Marple, "Nanostructured Titania/Hydroxyapatite Composite Coatings Deposited by High Velocity Oxy-Fuel (HVOF) Spraying", Materials Science and Engineering A, 458 (2007) 141-149.
- 29) L. Dubourg, **R. S. Lima**, C. Moreau, "Properties of Alumina-Titania Coatings Prepared by Laser-Assisted Air Plasma Spraying", Surface and Coatings Technology, 201 (2007) 6278-6284.
- 28) R. Soltani, E. Garcia, T. W. Coyle, J. Mostaghimi, **R. S. Lima**, B. R. Marple, C. Moreau, "Thermomechanical Behavior of Nanostructured Plasma Sprayed Zirconia Coatings", Journal of Thermal Spray Technology, 15(4) (2006) 657-662.
- 27) J. G. Legoux, F. Chellat, **R. S. Lima**, H. Shen, B. R. Marple, M. N. Bureau, G. A. Candelieri, "Development of Osteoblast Colonies on New Bioactive Coatings", Journal of Thermal Spray Technology, 15(4) (2006) 628-633.
- 26) **R. S. Lima**, H. Li, K. A. Khor, B. R. Marple, "Biocompatible Nanostructured High-Velocity Oxyfuel Sprayed Titania Coating: Deposition, Characterization and Mechanical Properties", Journal of Thermal Spray Technology, 15(4) (2006) 623-627.
- 25) B. R. Marple, **R. S. Lima**, H. Li, K. A. Khor, "Biomimetic Ceramic Surfaces Produced by Thermal Spraying Nanostructured Titania: A Coating Alternative to Hydroxyapatite on Orthopedic Implants?", Key Engineering Materials, 309-311 (2006) 739-742.
- 24) **R. S. Lima** and B. R. Marple, "From APS to HVOF Spraying of Conventional and Nanostructured Titania Feedstock Powders: A Study on the Enhancement of the Mechanical Properties", Surface and Coatings Technology, 200 (2006) 3428-3437.
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- 10) A. Kucuk, **R. S. Lima**, C. C. Berndt, "Influence of Plasma Spray Parameters on Formation and Morphology of ZrO₂-8wt% Y₂O₃ Deposits", Journal of the American Ceramic Society, 84(4) (2001) 693-700.
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