Prof Deborah Blaine

ASSOCIATE PROFESSOR

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Short Bio

Prof Blaine is an associate professor in the Department of Mechanical and Mechatronics Engineering, Stellenbosch University. Debby is a Matie Alum with an undergraduate degree in Mechanical Engineering, and she also has a PhD in Engineering Science & Mechanics from the Pennsylvania State University (Penn State) in the USA. She joined academia at Stellenbosch University as a senior lecturer in 2007, coming from an industry position in Germany as Deputy-Manager of Materials Research and Development at Bleistahl Produktions GmbH & Co. KG. She was awarded the Faculty of Engineering Teaching Excellence Award in the Distinguished Teacher category in 2018 and has been granted a SU Teaching Fellowship for 2021-2022. She is past president for the South African Society for Engineering Education (SASEE) and is a fellow and past president of the South African Institution of Mechanical Engineering (SAIMechE).

Research Interests

Powder metallurgy and sintering. Mechanical and material property characterisation. Processing-Microstructure-Properties. Engineering Education.

Selected Publications

Numerical comparison of lattice unit cell designs for medical implants by additive manufacturing
A du Plessis, I Yadroitsava, I Yadroitsev, SG le Roux & DC Blaine (2018) Virtual and Physical Prototyping, 13:4, 266-281.
https://doi.org/10.1080/17452759.2018.1491713

Manufacturing of high added value titanium components: A South African perspective. D Dimitrov, E Uheida,
G Oosthuizen, D Blaine, R Laubscher, A Sterzing, P Blau, W Gerber and O Damm (2018) IOP Conf. Ser.: Mater. Sci. Eng. 430 012009
https://iopscience.iop.org/article/10.1088/1757-899X/430/1/012009

Influence of heat treatments on the microstructure and tensile behaviour of selective laser melting-produced Ti-6Al-4V parts.
GM Ter Haar, TH Becker, DC Blaine (2016) South African Journal of Industrial Engineering Vol 27(3) Special Edition, pp 174-183.
https://doi.org/10.7166/27-3-1663

Two-Phase Master Sintering Curve for 17-4 PH Stainless Steel.
Jung, I.D., Ha, S., Park, S.J., Blaine, D.C., Bollina, R., & German, R.M. (2016) Metall Mater Trans A 47, 5548–5556.
https://doi.org/10.1007/s11661-016-3687-0

Failure prediction of full-size reactor components from tensile specimen data on NBG-18 nuclear graphite.
M.P. Hindley, D.C. Blaine, A. A. Groenwold, T.H. Becker. (2015) Nuclear Engineering and Design, Volume 284, 1-9,
https://doi.org/10.1016/j.nucengdes.2014.12.011.

Teaching

Materials Science A244 – 2nd year mechanical, mechatronic and industrial engineering

Strength of Materials W244 – 2nd year mechanical and mechatronic engineering

Intercultural Communication and Competencies – Complementary Studies 311 & 441