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A 3DP-based procedure for the fabrication of artificial UHMWPE trabecular bone tissue

In this report we describe the results pertaining to developing a 3D printing based procedure for the manufacture of open-cell porous scaffolds from UHMWPE simulating anisotropic trabecular bone tissue. The new method consisted of FFF fabrication of a 'negative' matrix using sacrificial PLA polymer, followed by UHMWPE powder

filling and hot molding, and final leaching to remove the matrix. Electron microscopy imaging of the resulting structure confirmed the creation of a robust open cell structure with pore diameters of the order of 300 μm . The implications of this advancement are further discussed.

Biography

Alexander M. Korsunsky received his degree of Doctor of Philosophy (DPhil) from Merton College, University of Oxford, following undergraduate education in theoretical physics. He has held visiting positions at the National University of Singapore, University Roma Trá©, and ENSICAEN in France. His current appointment is Professor of Engineering Science at the University of Oxford and Trinity College, Oxford.

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