Selective Laser Sintering of Ceramic Parts

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Project Description:
This research investigates using the Selective Laser Sintering (SLS) process to fabricate three-dimensional complex parts for aerospace, biomedical and energy applications. The parts being fabricated include aerospace structural components from high temperature and ultra-high temperature materials (alumina and zirconium diboride), bone scaffolds from 13-93 bioglass, and fuel-cell bipolar plates from graphite. The research objectives are: (1) investigating the feasibility of using SLS for producing 3D parts of complex geometry from various materials for future industrial applications, (2) determining the SLS process parameters, material compositions, and building strategy, (3) examining the part’s dimensional changes after SLS, binder burnout, and sintering processes, and (4) evaluating the mechanical strength, density and microstructure of the specimens after sintering. More details of the project description is available on the weblink: http://web.mst.edu/~vram/projects.htm.

Publications: