

# Investigation of the impact of porosity on the mechanical properties of FFF parts using Digimat AM simulation and experimental verification.

Fused Filament Fabrication (FFF) is a popular 3D printing technology that involves the extrusion of melted thermoplastic material layer by layer to create a 3D object. The process results in a porous structure that can affect the mechanical properties of the final product, such as its strength, toughness, and stiffness.

Porosity in FFF parts can result from several factors, including the material used, the processing parameters, and the design of the part. The impact of porosity on the mechanical properties of FFF parts is not well understood, and this is an area of active research.

The processing parameters are an important factor in determining the porosity and mechanical properties of FFF parts. Some of the key processing parameters that can impact the porosity and mechanical properties of FFF parts include printing temperature, layer thickness, printing speed, wall number, infill pattern, and infill density.

One way to study the impact of porosity on the mechanical properties of FFF parts is through simulation using a software tool such as Digimat AM. This allows researchers to model the behavior of FFF parts under various conditions and predict how the porosity will affect their mechanical properties. Verifying these predictions experimentally can help to validate the simulation results and provide a more complete understanding of the relationship between porosity and mechanical properties in FFF parts.

In summary, this research topic focuses on the investigation of the impact of porosity on the mechanical properties of FFF parts using Digimat AM simulation and experimental verification.

