

Investigation on the Acoustical Transmission Path of Additive Printed Metals

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Abstract : In terms of making machines more silent and convenient, it is necessary to analyze the transmission path of mechanical vibrations and structure-borne noise. A typical solution for the elimination of structure-borne noise would be to simply add stiffeners or additional masses to change the transmission behavior and, thereby, avoid the propagation of vibrations. Another solution could be to use materials with a different damping behavior, such as elastomers, to isolate the machine dynamically. This research approach investigates the damping behavior of additive printed components made from structural steel or titanium, which have been manufactured in the "Laser Powder Bed Fusion"-process. By using the design flexibility which this process comes with, it will be investigated how a local impedance difference will affect the transmission behavior of the specimens.

Keywords : 3D-printed, acoustics, dynamics, impedance

Conference Title : ICSM 2022 : International Conference on Smart Materials

Conference Location : Zurich, Switzerland

Conference Dates : January 14-15, 2022