

Title (en)  
ACOUSTIC METAMATERIAL AND METHOD FOR THE ADDITIVE MANUFACTURING THEREOF

Title (de)  
AKUSTISCHES METAMATERIAL UND VERFAHREN ZUR GENERATIVEN FERTIGUNG DAVON

Title (fr)  
META-MATERIAU ACOUSTIQUE ET PROCEDE POUR SA FABRICATION ADDITIVE

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Abstract (en)  
[origin: WO2022234228A2] The invention relates to an acoustic metamaterial (100, 100'), as well as to a method for manufacturing same. The acoustic metamaterial comprises a plurality of channels (101) or columns (101') each having the same cross-section with a hydraulic radius between 5 and 300  $\mu\text{m}$ , which channels or columns are arranged with a periodic spacing (t,s) between 2 and 600  $\mu\text{m}$ . This results in a highly dense network that can provide optimal acoustic absorption and/or impedance over a wide frequency range. The method for manufacturing same comprises additive manufacturing with a plurality of consecutive material deposition steps to form, in each step, a layer (203) comprising a plurality of periodically repeated cells (204) separated by walls (104). The layers (203) deposited in the consecutive material deposition steps are stacked with their respective cells (204) aligned to form channels (101, 206').

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