

Special Issue Reprint

Innovative Composite Materials for Sound Absorption and Insulation

www.mdpi.com/books/reprint/4555

Edited by
Francesco Martellotta

ISBN 978-3-0365-2381-1 (Hardback)

ISBN 978-3-0365-2380-4 (PDF)



Materials with sound-absorbing or sound-insulating properties have been rapidly evolving in recent years for several reasons. On one side, there is the ever-increasing awareness of the adverse effects that noise and lack of acoustic comfort may have on human health. On the other, the availability of more sophisticated fabrication techniques, calculation methods, and new materials, has stimulated researchers and, more and more frequently, industry to develop customized materials with improved properties.

This book collects contributions from different researchers covering several topics. A group of papers investigated the use of 3D printing to obtain perforated panels with extended frequency response, as well as to ideally design an optimized cell distribution to print (when fabrication techniques will make it possible) a porous material with a broader sound absorption. The role of the geometrical and microstructural properties of granular molecular sieves is investigated by another paper.

A second group of papers focused its attention on the use of natural or recycled components to create a skeleton of porous materials with good sound-absorbing properties and low environmental impact. Cigarette butts, recycled textile waste, and almond skins have been investigated by different authors.

Finally, the last batch of papers included a review of sound insulation properties of innovative concretes and two research papers focussing on a numerical and experimental analysis of wood plastic composite (WPC) panels and on the potential of semi-active solutions employing compressible constrained layer damping (CCLD).

MDPI Books offers quality open access book publishing to promote the exchange of ideas and knowledge in a globalized world. MDPI Books encompasses all the benefits of open access – high availability and visibility, as well as wide and rapid dissemination. With MDPI Books, you can complement the digital version of your work with a high quality printed counterpart.



Open Access

Your scholarly work is accessible worldwide without any restrictions. All authors retain the copyright for their work distributed under the terms of the Creative Commons Attribution License.



Author Focus

Authors and editors profit from MDPI's over two decades of experience in open access publishing, our customized personal support throughout the entire publication process, and competitive processing charges as well as unique contributor discounts on book purchases.



High Quality & Rapid Publication

MDPI ensures a thorough review for all published items and provides a fast publication procedure. State-of-the-art research and time-sensitive topics are released with a minimum amount of delay.



High Visibility

Due to our global network and well-known channel partners, we ensure maximum visibility and broad dissemination. Title information of books is sent to international indexing databases and archives, such as the Directory of Open Access Books (DOAB), and the Verzeichnis Lieferbarer Bücher (VLB).



Print on Demand and Multiple Formats

MDPI Books are available for purchase and to read online at any time. Our print-on-demand service offers a sustainable, cost-effective and fast way to publish MDPI Books printed versions.