Record Nr. UNINA9910349512803321 Autore Andrieux Sébastien Titolo Monodisperse Highly Ordered and Polydisperse Biobased Solid Foams / / by Sébastien Andrieux Cham:,: Springer International Publishing:,: Imprint: Springer,, Pubbl/distr/stampa 2019 **ISBN** 3-030-27832-8 Edizione [1st ed. 2019.] Descrizione fisica 1 online resource (165 pages) Collana Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053 671.8 Disciplina 668.493 Soggetti **Polymers** Amorphous substances Complex fluids **Biomaterials** Engineering—Materials Polymer Sciences Soft and Granular Matter, Complex Fluids and Microfluidics Materials Engineering Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di contenuto Introduction -- Theoretical Background -- Preliminary Work: From Liquid to Solid Foams -- Monodispers and Polydisperse Chitosan Foams via Microfluidics,. Monodisperse Highly Ordered Nanocomposite Foams -- General Conclusion and Outlook -- Experimental. This book discusses the synthesis of chitosan-based solid foams using Sommario/riassunto foam templating. Solid foams with pore sizes between a few micrometres and a few millimetres are widely used in a range of established and emerging applications, including filtration, catalysis, sound and thermal insulation, human protection, and tissue engineering. They are lightweight with large surface-to-volume ratios, and have excellent mechanical, acoustic, and thermal properties. However, most foaming processes are extremely complex, and there

remains a lack of sound scientific understanding of—and therefore

control over—the parameters that determine the properties of the material. One route towards tailor-made solid foams is liquid foam templating, where the liquid foam is generated first (with the desired structure) before being solidified into a solid foam with the desired structure. This book describes how liquid foam templating can be used to synthesise monodisperse solid foams as well as solid foams with a tuneable polydispersity.