

BEP Proposal: Constructing strong materials - Packing Spheres to Minimize Voids and Maximize Mass Bulk Density

Domenico Lahaye

Given a pile of spheres of the same materials but with various diameters, a question of interest to our industrial partner is to find a packing of the spheres that minimizes that the void volume and that therefore maximizes the mass bulk density of the packing. A mathematical model that provides insight into this questions has the potential of drastically changing the way in which raw materials are grinded prior to being further processed. Sample histograms of particle size distribution will be given as input to the problem.

Reference:

S.A.A.M. Fennis: Design of Ecological Concrete by Particle Packing Optimization