

عنوان مقاله:

Application of discrete element method for predicting particle arrangement and designing nano-patterned materials

محل انتشار:

سومین کنفرانس نانوساختارها (سال: 1388)

تعداد صفحات اصل مقاله: 3

نویسندگان:

R Riahifar - *Department of Ceramic, Materials and Energy Research Center, ۱۴۱۵۵-۴۷۷۷, Iran*

B Raissi - *Department of Ceramic, Materials and Energy Research Center, ۱۴۱۵۵-۴۷۷۷, Iran*

E Marzbanrad - *Department of Ceramic, Materials and Energy Research Center, ۱۴۱۵۵-۴۷۷۷, Iran*

C Zamani - *bDepartment of Electrònica, Universitat de Barcelona, Barcelona, ۰۸۰۲۸, Spain*

خلاصه مقاله:

Colloidal methods have proved themselves as effective ways of shaping ceramic parts, especially when nano-sized particles are prepared for device fabrication. On the other hand, nano-particles in suspension have a great tendency to form large aggregates in order to reduce their free energy. Formation of aggregates in green bodies hinders the advantages of nano-particles in such systems. This problem is avoidable by means of controlling a measurable parameter like zeta-potential in the starting solution. In this work, discrete element method (DEM) is introduced as an effective tool for predicting particle arrangement when ceramic parts are formed from colloidal solutions. Effect of zeta-potential on pattern formation is investigated and results are compared with experimental observations

کلمات کلیدی:

Discrete Element Method (DEM); Nan-patterning; Contact mechanics; DLVO theory; Zeta-potential

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/85176>

