conferenceseries.com SciTechnol

J Comput Eng Inf Technol 2015, 5:4(Suppl)
http://dx.doi.org/10.4172/2324-9307.C1.009

3rd International Conference on

Computer Graphics & Animation

November 07-09, 2016 Las Vegas, USA

Computer simulation in modern nanoelectronics

[1]Nataliia Mykytenko, [2]Dietmar Fink, [3]Arnold Kiv
[1]South-Ukrainian national pedagogical university, Ukraine
[2]Berlin Helmholtz-Zentrum fuer Materialien und Energie, Germany
[3]Ben-Gurion University of the Negev, Israel

Since the sixties of the past century it is known that energetic (with tens of MeV or more) heavy (with atomic masses being usually larger than that of Ar) ion irradiation ("swift heavy ions") introduces narrow (~ some nm) but long (typically 10-100 μm) parallel trails of damage in irradiated polymer foils, the so-called latent ion tracks. The created intrinsic free volume enables electrolytes to penetrate into the polymer, thus forming parallel liquid nanowires. The ion track technology is, in particular, directed towards biosensing applications. The presently developed ion track-based nanosensors (TBNS) provide high sensitivity, low power and low cost. The creation of TBNS requires a careful study of 1) the mechanisms of ion tracks formation, depending on the ion beam parameters and film materials; 2) the regularities of passing the electrolyte through the tracks, depending on their geometry and properties of internal surfaces; 3) the mechanisms of electric response in TBNS. In this presentation it is shown how through the use of improved methods of molecular dynamics, computer aided materials design and computer graphics a number of important problems linked to creating new nanoelectronic devices have been resolved.

mykytenkon@gmail.com

Fabricating 3D objects with interlocking parts

Peng Song
University of Science and Technology of China, China

Recent advances in 3D printing technologies bring wide range of applications from fast prototyping to product manufacturing. However, one intrinsic limitation of 3D printing is that we cannot fabricate a single object that is larger than the working volume of a 3D printer. To address this issue, we may partition the given object into 3D parts of manageable sizes for printing, and then assemble the object from the printed 3D parts. Rather than using connectors, glue, or skew, we propose to connect the printed 3D parts by 3D interlocking such that the assembled object can be not only repeatedly disassembled and reassembled, but also strongly connected by the parts' own geometry. We demonstrate the effectiveness of our approach on 3D models with a variety of shapes and realize some of them by 3D printing.

songpeng@ustc.edu.cn