**عنوان مقاله:**

Development of a Full Range Multi-scale Model to Obtain Elastic Properties of CNT/Polymer Composites

**محل انتشار:**

دومین کنفرانس بین المللی کامپوزیت (سال: 1389)

تعداد صفحات اصل مقاله: 6

**نویسندگان:**

M.M Shokrieh - *Professor, Composites Research Laboratory, Center of Excellence in Solid Mechanics and Dynamics*

R Rafiee - *Ph.D. Student*

**خلاصه مقاله:**

The main goal of this research is to develop a full range multi-scale modeling approach to extract Young's modulus and Poisson's ratio of carbon nanotube reinforced polymer (CNTRP) composites covering all nano, micro, meso and macro scales. The developed model consists of two different phases as top-down scanning and bottom-up modeling. At the first stage, the material region will be scanned from the macro level downward to the nano scale. Effective parameters associated with each and every scale will be identified through this scanning procedure. Accounting for identified effective parameters of each specific scale, suitable representative volume elements (RVE) will be defined, separately for all nano, micro, meso and macro scales. In the second stage of modeling, a hierarchical multi-scale modeling approach is developed. This modeling strategy will process the material at each scale and feed the obtained information to proceeding scale as input information. It has been shown that the developed modeling procedure provides a clear insight to the properties of CNTRP and it is a very efficient tool for simulation of mechanical behavior CNTRP composites

**کلمات کلیدی:**

Carbon Nanotube; Composites; Multi-scale Modeling; Young's modulus; Poisson'sRatio

**لینک ثابت مقاله در پایگاه سیویلیکا:**

https://civilica.com/doc/102683