

数学与系统科学研究院

计算数学所学术报告

报告人: 庄晓莹 教授

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报告题目:

**Computational modelling,
optimization and design of polymeric
nano composites**

邀请人: 崔俊芝 院士

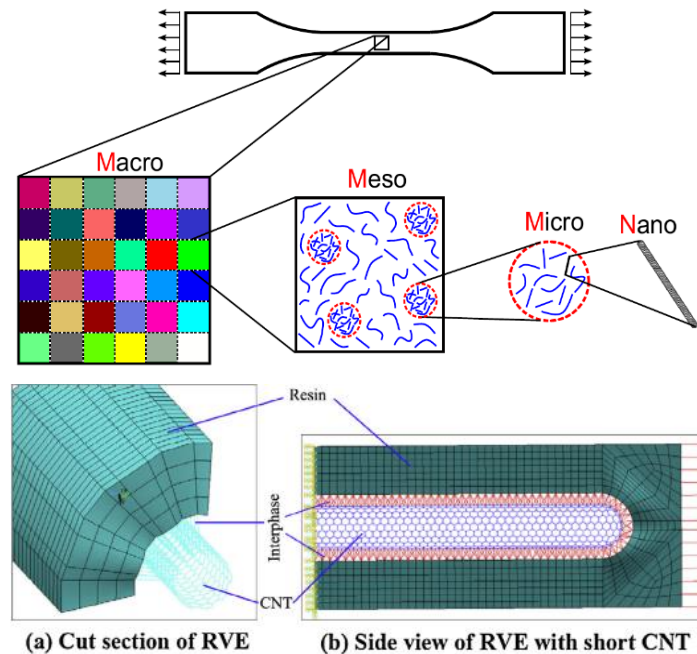
报告时间: 2017 年 8 月 16 日 (周三)

下午 16:30-17:30

报告地点: 数学院南楼六层

602 报告厅

Abstract:



The development of novel man-made materials is among the main reasons that made transistors and computers much faster, many electronic devices smaller and cheaper or medical implants more compatible. The key criteria for the choice of a material w.r.t a specific application are the macroscopic properties. However, the macroscopic properties are governed by the features and interactions at a much finer length scale. For the design of a new material, it is therefore of utmost importance to understand and quantify the effects taking place at the finer scale and how they are linked to the coarser scales. As (experimental) manufacturing and testing is time-consuming, expensive and sometimes unfeasible, computational methods were developed to support the design of new materials and structures. In this talk, Dr. Zhuang will present her recent work in multiscale and multi-physics modelling for the characterization, optimization and design of nano-composites. Some novel computational methods including peridynamics and phase field method will be presented for characterizing the fracture properties. She will also show some interesting applications of the methods in designing and optimizing nano energy harvester.

报告人简介:

庄晓莹，女，2001-2007 年在同济大学土木工程获得本科和硕士学位，2007 年获英国政府 EPSRC（工程与自然科学研究理事会）全额奖学金资助，赴英国杜伦大学攻读博士，2011 年获得计算力学方向博士学位，同年获得 Zienkiewicz（辛科维奇）计算力学最佳博士学位论文奖（年度唯一），2011 年任同济大学讲师，2013 年任副教授，2016 年任教授。2015 年获德国洪堡基金会授予青年科学家最高奖项索菲亚-科瓦雷夫斯亚奖，是首位力学方向获奖者。她的研究兴趣包括：纳米复合材料多尺度设计、纳米能量收集器拓扑优化、拓扑绝缘体和断裂模拟方法的研究包括近场动力学、无网格三维断裂模拟、数值流形方法、虚拟单元法等。目前她在莱布尼茨-汉诺威大学 连续介质力学研究所领导由 4 名博士后和 6 名博士生组成的研究课题组。

欢迎大家参加！