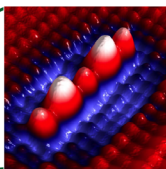


LEGO 2 NANO

清华大学，九月一日至九月七日



CENTIMETER 厘米



NANOMETER 纳米



The LEGO Foundation

LEGO2NANO

2013 LEGO2NANO是第三次中-英暑期学校。来自不同教育背景的参与者，将在充满竞争与合作的环境中接受挑战，在一个星期内设计出低成本的扫描探针显微镜。同时，暑期学校参与者将与清华Toyhouse、新加坡科技与设计大学合作，借助系统性分布式学习系统，以及整体化的设计方法等理论与工具，体验系统创新的经历。暑期学校中，参与者将得以接触到并亲自运用包括3D打印、需求驱动的设计过程等在内的最新科技。他们还将同清华、北大的多个实验室协作，并探访中国硅谷中关村，感受在中国这片拥有古老文明的土地上的科技氛围与多样性的文化。

主办单位

清华大学微纳力学与多学科交叉创新研究中心

北京大学微电子学研究院

伦敦纳米技术中心

创作研究院，伦敦大学学院

清华大学玩具坊工作室

SUTD-MIT国际设计中心

新加坡科技与设计大学

赞助商

清华大学国际合作与交流处

乐高基金会

联系方式

官方博客

toyhouse.cc

电子邮箱

toyhouse.adm@gmail.com

新浪微博

清华Toyhouse

联系号码

010 - 6279 2539

办公地点

清华大学经济管理学院舜德楼 北410

邮政编码

100084

主讲人

Francois Grey, Deputy Director, CNMM, 清华大学

Gabriel Aeppli, Director, 伦敦纳米技术中心, 伦敦大学学院

顾学雍, Director, Toyhouse, 清华大学

徐芦平, Associate Prof. & Deputy Director, 微纳力学与多学科交叉
创新研究中心, 清华大学

徐迎庆, Academy of Art & Design, 清华大学美术学院

Bo Stjerne Thomsen, Senior Research Manager, 乐高基金会

林力, Academic Member, 微纳力学与多学科交叉创新研究中
心, 清华大学

Neil Curson, Lecturer, 伦敦纳米技术中心, 伦敦大学学院

Yufeng Jin, Researcher, 北京大学

于晓梅, Institute of Microelectronics, 北京大学

David Li, Founder, XinCheJian Makerspace, 上海

Ellie Doney, Artist & Co-Founder, Institute of Making, 伦敦大学学院

Eric Pan, CEO, SEEED Studio

Steven Canvin, Community Manager, LEGO MINDSTORMS

参与大学

牛津大学, 英国

伦敦大学学院, 英国

清华大学, 中国

北京大学, 中国

项目日程

九月一日, 星期日

- 1400 Lego2Nano和参与人员介绍, Francois Grey@舜德楼 412
- 1430 制造科学工具, Gabriel Aeppli@舜德楼 412
- 1500 休息
- 1515 极限学习过程(XLP)介绍, 顾学雍@舜德楼 412
- 1530 CNMM的开放智慧实验室, 徐芦平@舜德楼 412
- 1545 乐高与学习, Bo Stjerne Thomsen@舜德楼 412
- 1600 休息
- 1615 团队组建/理解问题/用户需求的力量讨论会@舜德楼 412
- 1740 参观实验室
- 1800 晚餐@观畴园餐厅 (万人饮食广场)

九月二日, 星期一

- 0900 理解技术问题@基础工业训练中心
- 1200 午餐@舜德楼 412
- 1230 扫描技术介绍, 林力@舜德楼 412
- 1300 扫描探针显微镜介绍, Neil Curson@舜德楼 412
- 1330 休息
- 1400 构思设计课程@基础工业训练中心
- 1800 晚餐@素虎素餐

九月三日, 星期二

- 0900 原型设计课程@基础工业训练中心
- 1200 午餐@舜德楼 412
- 1230 3D打包介绍@舜德楼 412
- 1300 高分子微纳米加工介绍, 于晓梅@舜德楼 412
- 1330 休息
- 1400 构建测试第一阶段A@基础工业训练中心
- 1800 晚餐

九月四日, 星期三

- 0900 构建测试第一阶段B@基础工业训练中心
- 1200 午餐@舜德楼 412
- 1230 数字文化与中国文化, 徐迎庆@舜德楼 412
- 1300 群体设计和开放科学运动, Francois Grey @舜德楼 412
- 1330 休息
- 1400 参观国家纳米科学技术中心/微电子研究所/北京创客空间
- 1600 高中生观摩@基础工业训练中心
- 1830 晚餐@熙春园

九月五日, 星期四

- 0900 构建测试第二阶段A@基础工业训练中心
- 1200 午餐@412舜德楼
- 1230 上海新车间创客空间创始人@舜德楼 412
- 1300 英国创客运动, Ellie Doney@舜德楼 412
- 1330 休息
- 1400 构建测试第二阶段B@基础工业训练中心
- 1800 晚餐

九月六日, 星期五

- 0900 构建测试最后阶段@基础工业训练中心
- 1200 午餐@舜德楼 412
- 1230 中国和开源硬件行业, Eric Pan@舜德楼 412
- 1300 Lego Mindstorms 社区, Steven Canvin@舜德楼 412
- 1330 休息
- 1400 最终展示会准备@基础工业训练中心
- 1630 颁奖典礼@基础工业训练中心
- 1830 晚餐

九月七日, 星期六

- 0800 长城文化之旅

地图



集体长城游览



游览地点

国家纳米科学技术中心

中国国家纳米科学中心(NCNST)是由中国科学院(CAS)和教育部共同创办的研究中心。NCNST的主要研究方向为纳米科学的基础理论与科学应用。NCNST的目标是为纳米科学创建一个公共的技术平台，并打下研究基础。这个技术平台将向国内与国外的用户开放最先进的科学设备。

微电子研究所，北京大学

北京大学微电子学研究院集成微纳系统研究所成立于1996年，多年来在王阳元院士的指导下，致力于微纳加工技术、微纳米器件和集成微纳系统研究。本研究所是“微米/纳米加工技术国家级重点实验室”的重要组成部分。

北京创客空间

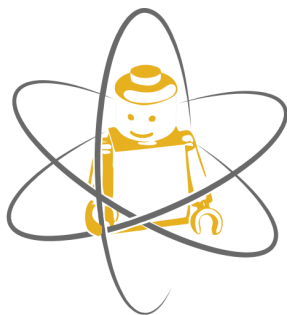
北京创客空间是由一个叫Flamingo的神秘创客于今年1月发起成立的创客组织。其使命是鼓励来自实体社会以及线上社区的用户一起构建和发展开源硬件生态系统。在这里，人们可以通过交互式设计来进行学习、分享和工作。通过使用开源硬件和开源软件，可以使来自世界各地的工程师分享他们的知识与开发成果。在开源所创建的共享体系下，每一个工程师将不再是从零开始而是可以通过完善别人的工作来开发新的产品。

温馨提醒 / 必备品

- * 轻便耐用的全包裹鞋子（不要穿拖鞋或凉鞋）
- * 雨伞 / 雨衣
- * 够全天享用的充足的淡水
- * 墨镜（可选）
- * 照相机（可选）
- * 零食（可选，尽量带无果皮的食物）

我们鼓励轻装上阵！

附录

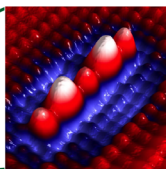


LEGO 2 NANO

TSINGHUA, BEIJING SEPT 1-7 2013



CENTIMETER 厘米



NANOMETER 纳米



CNMM



STATE KEY LABORATORY OF NANOELECTRONICS AND NANOMATERIALS

UCL LONDON CENTRE FOR NANOTECHNOLOGY



LCN LONDON CENTRE FOR NANOTECHNOLOGY

The LEGO Foundation

LEGO2NANO

LEGO2NANO 2013 is the third in a series of UK-China Summer Schools between Tsinghua University, Peking University and University College London. School participants from diverse educational backgrounds are expected to work on a competitive challenge in designing a low-cost scanning probe microscope within a week. In collaboration with Tsinghua-University-based Toyhouse and the Singapore University of Technology and Design, participants will work in an innovative space using a systematic distributed learning workflow with integrated design methodology. The school is designed to allow hands-on work with the latest technologies such as 3D printing as well as design from demands' point of view. Participants will be visiting and working with several laboratories in Tsinghua University and Peking University as well as experiencing the technological atmosphere of Zhongguancun, Beijing's Silicon Valley, and exploring aspects of Chinese culture.

ORGANIZERS

Centre for Nano & Micro Mechanics, Tsinghua University
Institute of Microelectronics, Peking University
London Centre for Nanotechnology, University College London
Institute of Making, University College London
Toyhouse Studio, Tsinghua University
Singapore University of Design and Technology
SUTD-MIT International Design Centre

SPONSORS

Tsinghua University Office of International Cooperation & Exchange
LEGO Foundation

CONTACT INFO

Official Website	start.toyhouse.cc
Weibo	Toyhouse
Email	toyhouse.adm@gmail.com
Contact Number	Emma (+86 157-2681-1352)
Address	North 410, Shun-De Building, Tsinghua University, Beijing 100084

SPEAKERS

Francois Grey, Deputy Director, CNMM, Tsinghua University
Gabriel Aeppli, Director, London Centre for Nanotechnology, UCL
Ben Koo, Director, Toyhouse, Tsinghua University
Lu-Ping Xu, Associate Prof. & Deputy Director, CNMM, Tsinghua University
Ying-Qing Xu, Academy of Art & Design, Tsinghua University
Bo Stjerne Thomsen, Senior Research Manager, LEGO Foundation
Lin Li, Academic Member, CNMM, Tsinghua University
Neil Curson, Lecturer, London Centre for Nanotechnology, UCL
Yufeng Jin, Researcher, Peking University
Yu Xiaomei, Institute of Microelectronics, Peking University
David Li, Founder, XinCheljian Makerspace, Shanghai
Ellie Doney, Artist & Co-Founder, Institute of Making, UCL
Eric Pan, CEO, SEEED Studio
Steven Canvin, Community Manager, LEGO MINDSTORMS

PARTICIPATING UNIVERSITIES

Oxford University, UK
Peking University, China
Tsinghua University, China
University College London, UK

SCHEDULE



September 1st, Sunday

- 1400 Introduction to LEGO2NANO, Francois Grey @ 412, ShunDe Building
- 1430 Making scientific tools, Gabriel Aeppli @ 412, ShunDe Building
- 1500 Break
- 1515 The Extreme Learning Process, Ben Koo @ 412, ShunDe Building
- 1530 Open Wisdom Lab @ CNMM, Luping Xu @ 412, ShunDe Building
- 1545 LEGO and Learning, Bo Stjerne Thomsen @ 412, ShunDe Building
- 1600 Break
- 1615 Team Building / Understanding Problem / Customer Needs Power Session / School Prep @ 412, ShunDe Building
- 1740 Tour Around Classrooms & Laboratory
- 1800 Dinner @ Tsinghua Cafeteria

September 2nd, Monday

- 0900 School Visit 1 / Understanding Technical Issues @ Fundamental Industrial Training Centre (Training Centre for short)
- 1200 Lunch @ 412, ShunDe Building
- 1230 Introduction to Scanning Technologies, Lin Li @ 412, ShunDe Building
- 1300 Scanning Probe Microscopy Intro, Neil Curson @ 412, ShunDe Building
- 1330 Break
- 1400 Ideation Power Session Lesson @ Training Centre
- 1800 Dinner @ Vege Tiger

September 3rd, Tuesday

- 0900 Prototyping Power Session Lesson @ Training Centre
- 1200 Lunch @ 412, ShunDe Building
- 1230 3D Packaging Intro, Yufeng Jin @ 412, ShunDe Building
- 1300 Polymer-based Micro & Nano Fabrication Intro, Yu Xiaomei @ 412, ShunDe Building
- 1330 Break
- 1400 Build Test Phase 1A @ Training Centre
- 1800 Dinner

September 4th, Wednesday

- 0900 Build Test Phase 1B @ Training Centre
- 1200 Lunch @ 412, ShunDe Building
- 1230 Digital Culture and Chinese Culture, Ying-Qing Xu @ 412, ShunDe Building
- 1300 Crowdfunding and The Open Science Movement, Francois Grey @ 412, ShunDe Building
- 1330 Break
- 1400 Visit to NCNST / Microelectronics / MaxPace Maker
- 1600 High School Student Visit by Tsinghua Fu Zhong @ Training Centre
- 1830 Dinner @ Xi Chun Yuan Restaurant

September 5th, Thursday

- 0900 Build Test 2A @ Training Centre
- 1200 Lunch @ 412, ShunDe Building
- 1230 Chinese Maker Movement, David Li @ 412, ShunDe Building
- 1300 The UK Maker Movement, Ellie Doney @ 412, ShunDe Building
- 1330 Break
- 1400 Build Test Phase 2B @ Training Centre
- 1800 Dinner

September 6th, Friday

- 0900 Build Test Final Phase @ Training Centre
- 1200 Lunch @ 412, ShunDe
- 1230 China & The Open Hardware Industry, Eric Pan @ 412, ShunDe
- 1300 LEGO Mindstorms Community, Steven Canvin @ 412, ShunDe
- 1400 Preparation & Final Adjustment @ Training Centre
- 1630 Award Presentation Ceremony / Final Student Test @ Training Centre
- 1830 Dinner

September 7th, Saturday

- 0800 Great Wall Excursion

MAP



GREAT WALL EXCURSION



SITES

National Centre for Nanoscience & Technology, China

The National Center for Nanoscience and Technology (NCNST) of China is co-founded by Chinese Academy of Sciences (CAS) and Ministry of Education. In NCNST, basic and applied research in nanoscience has been positioned as the main research direction. Its objective is to build a public technological platform and research base for nanoscience, which is featured with state-of-the-art equipments and is open to both domestic and international users.

The Institute of Microelectronics, Peking University, China

Institute of Microelectronics, Peking University Institute of Integrated Micro-Nano Systems was founded in 1996. Over the years, under the guidance of Academician Yang Yuan Wang, the institute research is dedicated to micro-nanofabrication technologies, micro-nano-devices and integrated micro-nano System.

Beijing Maker Space, China

The lab was established in January this year by a mysterious hacker called Flamingo. The mission is to encourage social innovation and develop the open-source hardware ecosystem by building a physical and online community where people can learn, share and work on projects using interactive design. Like open-source software, open source hardware means people from around the world have already tried to build something and can share how they did it, so an engineer does not start from nothing. The beauty of knowledge-sharing means people can build on and improve what somebody else has already done.

Reminder / Things to bring

- * Wear covered shoes for rigorous walking activity
- * Umbrella / Poncho
- * Sufficient amount of water for half-a-day
- * Shades (optional)
- * Camera (optional)
- * Snacks (optional)

We encourage you to travel light!

NOTE