

CURRICULUM VITAE

Bin Kang



Academic Degree: Ph.D. Candidate

Date of Birth: 14 June, 1983

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Education

- 2008.9-present Joint-Ph.D. student in Chemistry, Georgia Institute of Technology and NUAA. Supported by CSC fellowship (China) and Julius-Brown fellowship (GeorgiaTech).
Thesis title: "Single pulse-based photoacoustic dynamics and cancer treatment"
Adviser: Prof. Moatafa A. El-Sayed & Prof. Da Chen
- 2005.9-2008.8 Ph.D. student in Chemistry, NUAA, Nanjing, P.R. China.
Thesis title: "Photoacoustic effect of carbon nanotubes for cancer treatment"
Adviser: Prof. Da Chen
- 2001.9-2005.7 B.S. in Applied Chemistry, Nanjing University of Aeronautics and Astronautics (NUAA), Nanjing, P.R. China.
Thesis title: "High energy photon-induced reactions in microemulsion system"
Adviser: Prof. Yaodong Dai

Research Interest

My research interfaces with nanotechnology, biomaterials and biophysics. Ongoing project focuses on the interaction between laser, nanomaterials and living cells. The first section of such program involves researching the intercellular uptake and pathway of nanoparticles into living cells; and exploring their potential application on diagnostics and selective photodynamic therapy of cancer. This section also includes the basal physics and chemistry of nanomaterials, i.e. the photophysical properties of nanoparticles, the biofunctionalizaion of nanoparticles.

Another part of my past research also involves developing new approach for synthesizing biocompatible semiconductor nanocrystals (Qdots) in aqueous system, and researching the potential use in cell stain and bio-imaging.

Awards and Honors

1. first class scholarship of China Aerospace Science and Technology Corporation, 2007.
2. top 10 excellent postgraduate student of Nanjing University of Aeronautics and Astronautics, 2007.
3. top grade scholarship for postgraduate student in Nanjing University of Aeronautics and Astronautics, 2007.
4. postgraduate model of Nanjing University of Aeronautics and Astronautics, 2006.
5. excellent graduating student for undergraduate of Nanjing University of Aeronautics and Astronautics, 2005.
6. first class award for excellent academic paper prize of undergraduate student in Jiangsu Province, 2005.
7. top 10 excellent undergraduate student of Nanjing University of Aeronautics and Astronautics, 2003.
8. Gold medal of National Olympic Competition in Chemistry of China High School Students, 2000.

Lab work

Be experienced in chemistry of carbon nanotubes; cell culture; fluorescence probing; synthesizing semiconductor nanocrystals (ZnSe, CdSe) and magnetic nanoparticles.

Be skilled in handling the Laser Scanning Confocal Microscope; Flow cytometer; UV-vis and Fluorescence spectrometer; IR and Raman spectrometer, and be able to use XRD, TEM and SEM.

Conferences

1. Nov. 2007. The 6th China International NanoScience and Technology Symposium. Chengdu, China.
2. Aug. 2007. The 5th Doctoral Academic Forum of China Association of Science and Technology. Changchun, China.
3. Sep. 2006. The 1st Asia-Pacific Symposium on Radiation Chemistry. Shanghai, China.

Publication

5. Bin Kang, Decai Yu, Yaodong Dai, Shuquan Chang, Da Chen, Yitao Ding. Biodistribution and accumulation of intravenously administered carbon nanotubes in mice probed by Raman spectroscopy and fluorescent labeling. *Carbon*. resubmitted after revision.
4. Bin Kang, Yaodong Dai, Shuquan Chang, Da Chen. Explosion of single-walled carbon nanotubes in suspension induced by large photoacoustic effect. *Carbon*. 2008, 46(6): 978-981.

(This work first reported the giant photoacoustic emission in carbon nanotube solution. The photoacoustic signal is 200,000 times stronger than equivalent absorbing dye. The peak pressure of the photoacoustic shock wave can be up to 100 MPa.)

3. Bin Kang, De-cai Yu, Shu-quan Chang, Da Chen, Yao-dong Dai, Yitao Ding. Intracellular uptake, trafficking and subcellular distribution of folate conjugated single walled carbon nanotubes within living cells. *Nanotechnology*. 2008 (19) 375103 (8pp).

(This paper reported the threshold cytotoxicity of carbon nanotubes. Because of the importance, this work was highlighted as a News on www.nanotechweb.org of IOP.)

2. Bin Kang, Shu-quan Chang, Hao Sun, Yao-dong Dai, Da Chen. γ -radiation synthesis and properties of superparamagnetic CS-ZnSe:Mn nanocrystals for biological labeling. *J. Nanosci. Nanotechno.* 2008 (8): 3857–3863.

(This paper provided a new methodology for QDs synthesis. Because of the importance of this work, this paper was accepted directly in 11 days without any peer-review process.)

1. Bin Kang, Shu-quan Chang, Yao-dong Dai, Da Chen. Radiation synthesis and magnetic properties of novel $\text{Co}_{0.7}\text{Fe}_{0.3}$ /Chitosan compound nanoparticles for targeted drug carrier. *Radiat. Phys. Chem.* 6 (2007): 968–973

If you are interested in any work above, I am very pleased to send you the full text.

Patents

1. Bin Kang, Yaodong Dai, Da Chen. Carbon nanotube-nanobomb, China Invention Patent. No. 200710019316.5
2. Bin Kang, Decai Yu, Yaodong Dai, Da Chen. Carbon nanotube bio-nanomissile, China Invention Patent. No. 200710019317.X