



南京大学高济宇有机化学前沿讲座

Find the Art of Chemistry!

题目: The challenges and opportunities of polymer mechanochemistry

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Biography:

Profession experience:

- 9/12- Reader (US equivalent: full professor without chair), University of Liverpool
- 6/05-8/12 Assistant Professor, Department of Chemistry, University of Illinois at Urbana Champaign.
- 5/03-5/05 Postdoctoral, Harvard University (G. M. Whitesides).
- 8/02-4/03 Postdoctoral, Stanford University (J. P. Collman).

Education:

6/97-7/02 Ph.D./MS, Stanford University (J. P. Collman) Thesis: “*Synthesis and Reactivity of Metalloporphyrins in (A) Biomimetic Studies of Terminal Oxidases and (B) the Preparation of Novel Heterodinuclear Multiple Metal-Metal Bonds*”.

9/91-6/96 *Summa Cum Laude* diploma in chemistry, University of St. Petersburg, Russia Thesis: “*Automated Synthesis of ¹⁴C-Pyruvic Acid for Hypoxic Zone Visualization by Positron Emission Tomography.*”

Research Interest:

Our long term objective is to understand how localized chemical reactions contribute to the response of polymeric materials to mechanical loads and to exploit such load-dependent reactivity in creating new (1) stress-responsive, actuating and other energy transducing materials and smart delivery systems; (2) tools for studying energy flows and dissipation pathways in synthetic and biological soft matter and (3) polymer processing methods (including recycling). To achieve this goal, we integrate synthesis, physicochemical measurements, quantum-chemical computations, statistical mechanical theory and a bit of engineering.

Publications:

1. Akbulatov, S.; Tian, Y.; Huang, Z.; Kucharski, T. J.; Yang, Q.; Boulatov, R. Experimentally realized mechanochemistry distinct from force-accelerated dissociation of loaded bonds. *Science*, **2017**, 357, 299-303
2. Boulatov, R. Demonstrated leverage. *Nature Chem.* **2013**, 5, 84-86

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