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Expertise : DNA Nanotechnology

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Reserch Theme in This Project : Development of artificial receptor for sensing and transmitting molecular information / Development of molecular transformation system for single-molecule sensing / Construction of membrane-penetrating DNA channel / Visualization of interaction of DNA nanostructures on a lipid membrane

Main Research Results, Publications :

1. Design and preparation of multidimensional DNA origami nanostructures, programmed assembly and functionalization

J. Am. Chem. Soc. **2009**, 131, 15570; *ACS Nano* , **2011**, 5, 665; *J. Am. Chem. Soc.* **2011**, 133, 14488; *J. Am. Chem. Soc.* **2012**, 134, 4654; *Angew. Chem. Int. Ed.* **2012**, 51, 2421; *Angew. Chem. Int. Ed.* **2014**, 53, 7484.

2. Single-molecule imaging of enzyme reactions using DNA origami nanostructures

J. Am. Chem. Soc. **2010**, 132, 1592; *Angew. Chem. Int. Ed.* **2010**, 49, 9412; *Angew. Chem. Int. Ed.* **2012**, 51, 8778; *J. Am. Chem. Soc.* **2014**, 136, 211; *Nano Lett.* **2014**, 14, 2286; *Angew. Chem. Int. Ed.* **2015** in press.

3. Single-molecule imaging of DNA structural changes using DNA origami nanostructures

J. Am. Chem. Soc. **2010**, 132, 16311; *Angew. Chem. Int. Ed.* **2012**, 51, 10518; *J. Am. Chem. Soc.* **2013**, 135, 1117; *J. Am. Chem. Soc.* **2013**, 135, 18575; *Angew. Chem. Int. Ed.* **2014**, 53, 4107.

4. Molecular nanomachines and nanodevice using DNA origami nanostructures

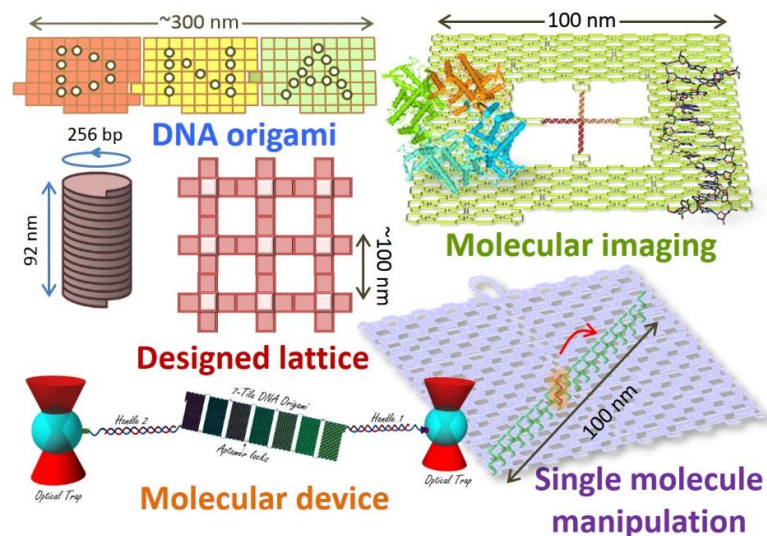
Nature Nanotechnology , **2011**, 6, 166; *Nature Nanotechnology* , **2012**, 7, 169; *J. Am. Chem. Soc.* **2012**, 134, 2852; *J. Am. Chem. Soc.* **2012**, 134, 20645; *Angew. Chem. Int. Ed.* **2014**, 53, 8137.

5. Self-assembly process of DNA origami nanostructures on a lipid bilayer

J. Am. Chem. Soc. **2014**, 136, 1714; *Nature Communications* , **2015** in press.

6. Reviews related to DNA nanotechnology

Angew. Chem. Int. Ed. **2012**, 51, 874; *Acc. Chem. Res.* **2014**, 47, 1645; *Chem. Rev.* **2014**, 114, 1493; *ACS Nano* , **2015**, 9, 3418.



Recent Activities: I would like to contribute to the molecular robotic project by DNA origami construction and high-speed AFM imaging.