Nanofabrication with 3D DNA Origami

William Shih

Thursday, 2009 August 20

from Nelson P, Biological Physics: Energy, Information, Life textbook
Shawn Douglas
Wyss Technology Development Fellow
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Wyss Technology Development Fellow


100 nm
“Monolith”  
Shawn Douglas

“Genie Bottle”  
Franziska Graf

“Square Nut”  Shawn Douglas

“Railed Bridge”  Tim Liedl
“Slotted Cross”

Björn Högberg
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Björn Högberg
Design challenges

Steep learning curve

Ad hoc methods are tedious and error prone

New shapes can require days or weeks of effort
Exploring shape dependence of DNA–particle cellular uptake

Franziska Graf

Katrina Galkina
Closeups

100 nm
Conclusions

We can self-assemble arbitrary 3D-origami DNA nanostructures.

Precise control over self-assembly of 3D DNA nanostructures will be useful.

Support

NIH New Innovator Award
DFCI Barr Award in Innovative Basic Cancer Research
Wyss Institute for Biologically Inspired Engineering
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