

# Comparing electrical homogeneity in nanoring and nanostick networks

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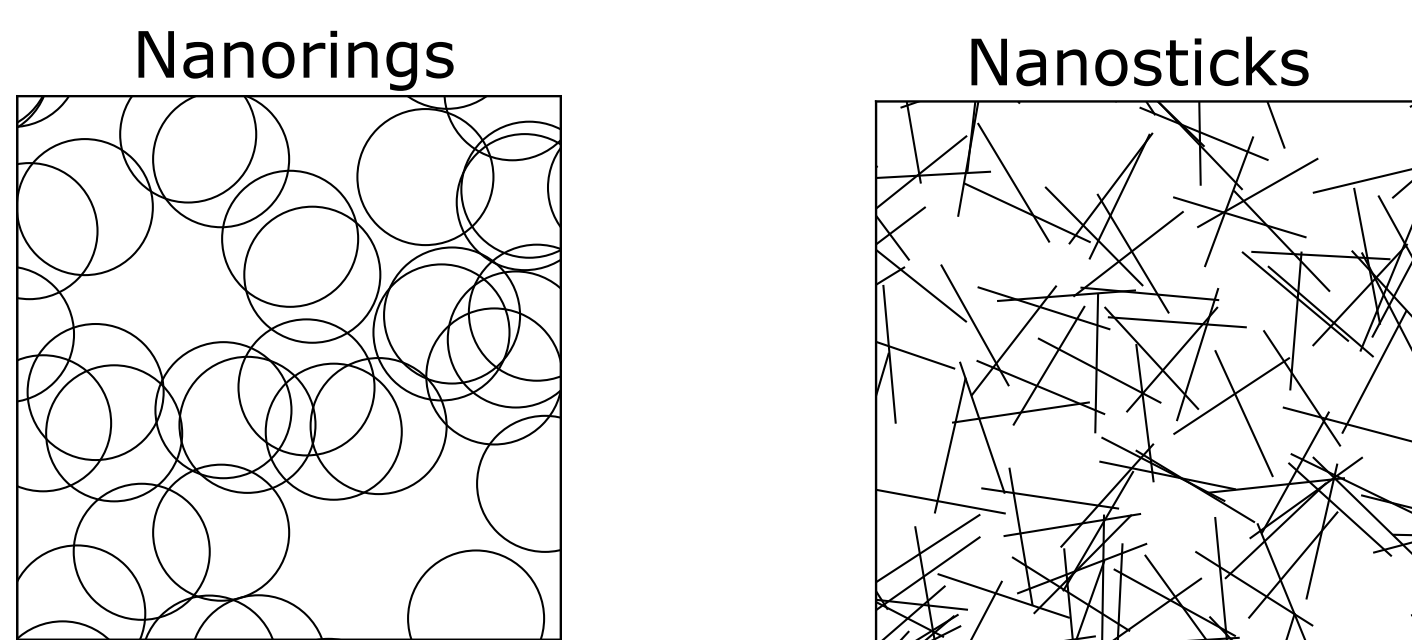
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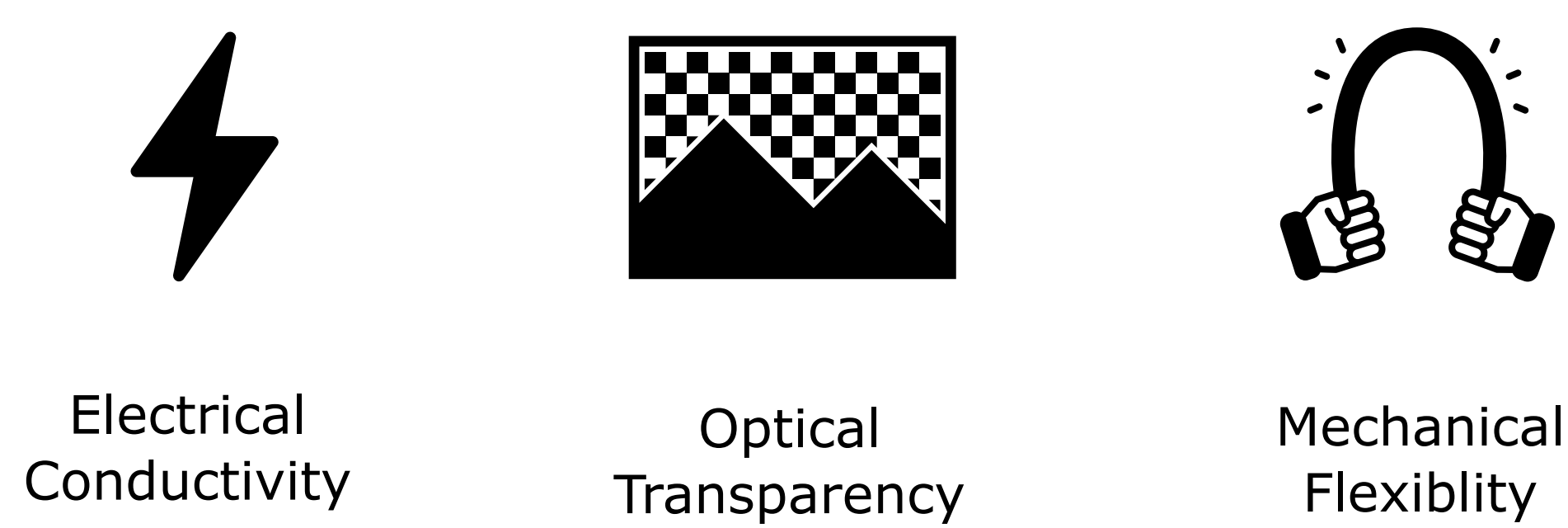
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## Nanowire networks: Tiny wires with large impact

Different geometries exist

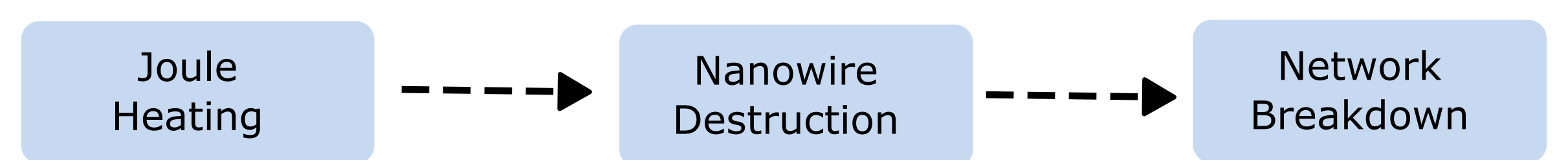
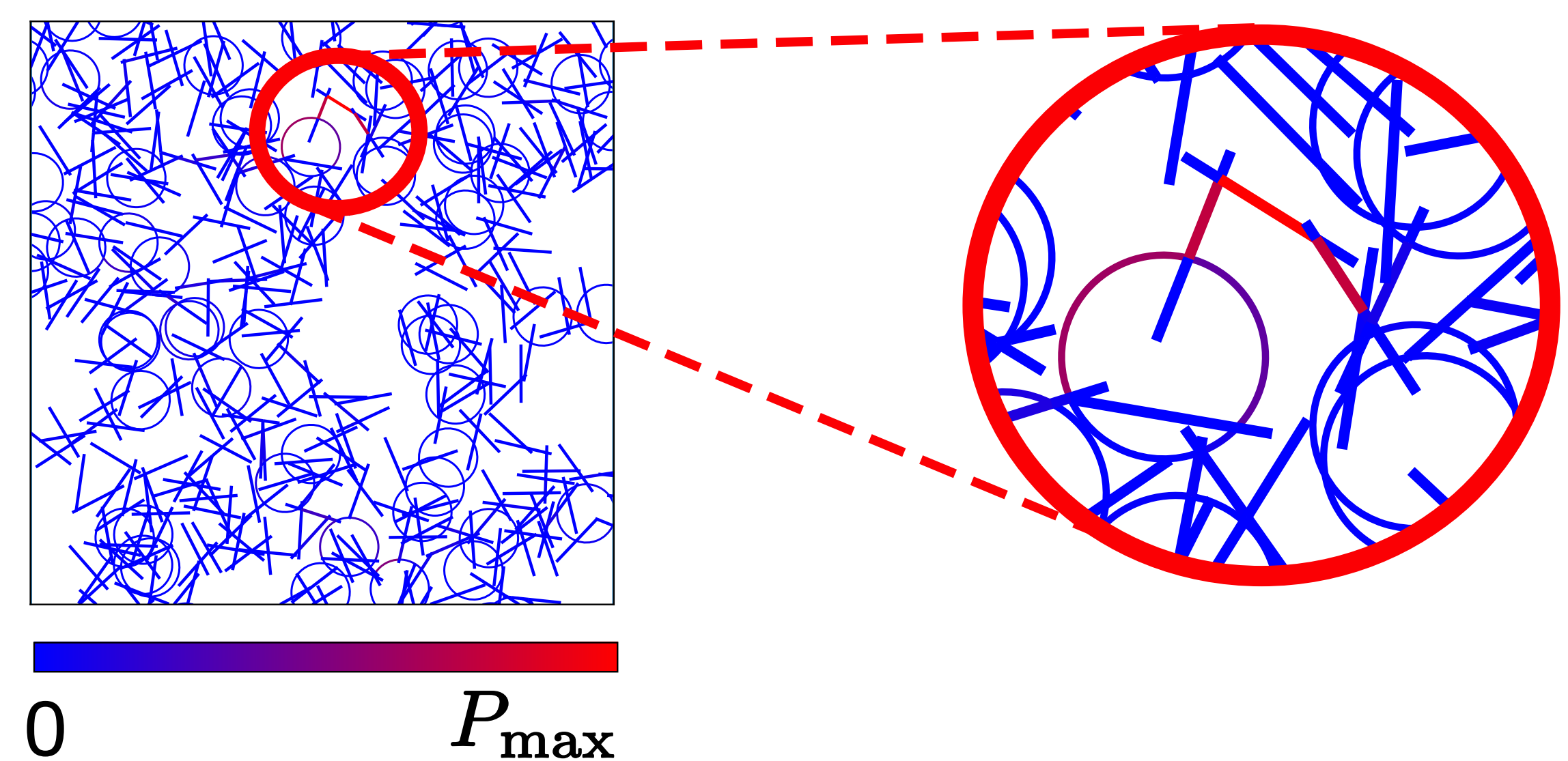


Networks have incredible properties



⇒ Applications!

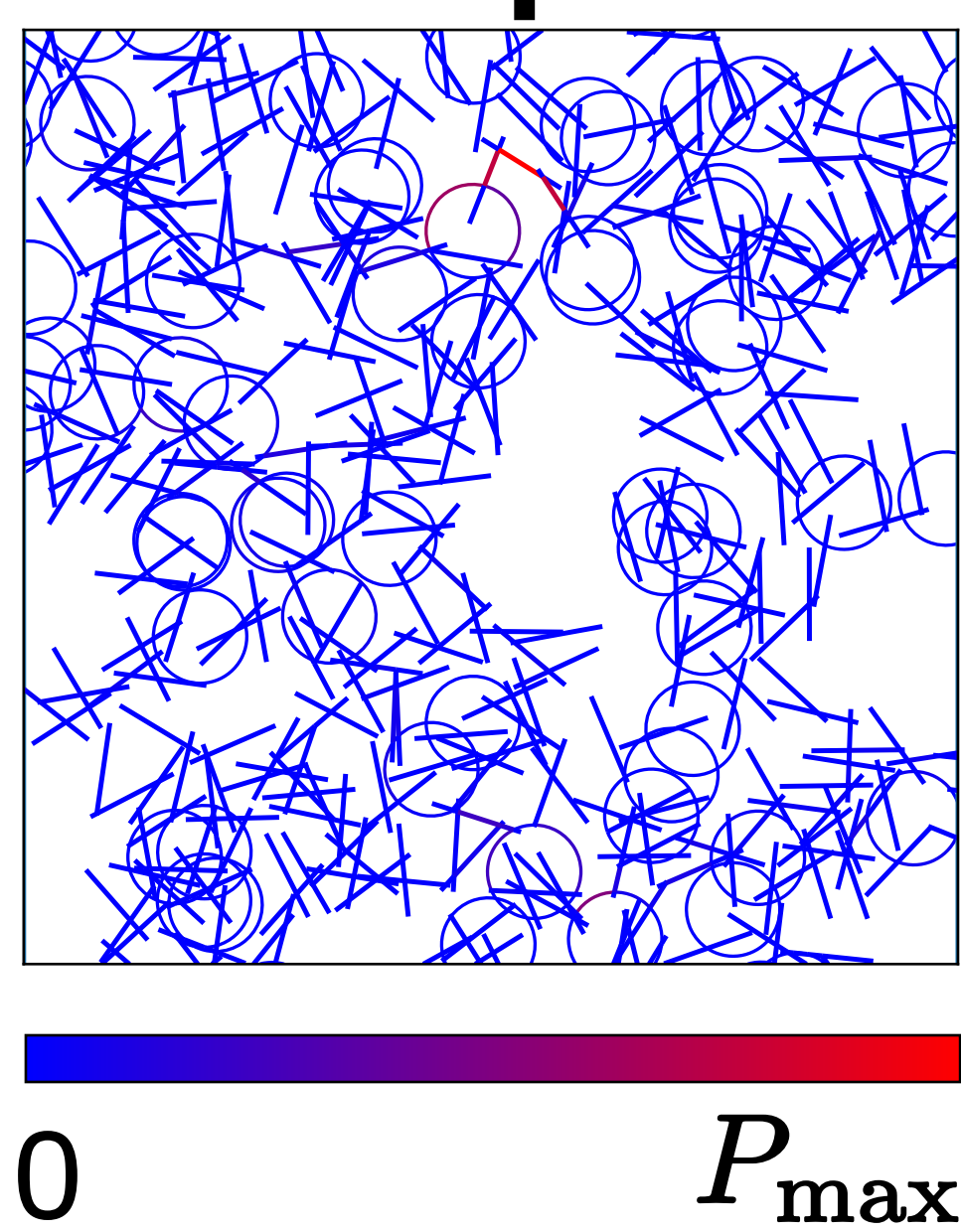
## Hotspots cause network failure!



⇒ We need homogeneous networks!

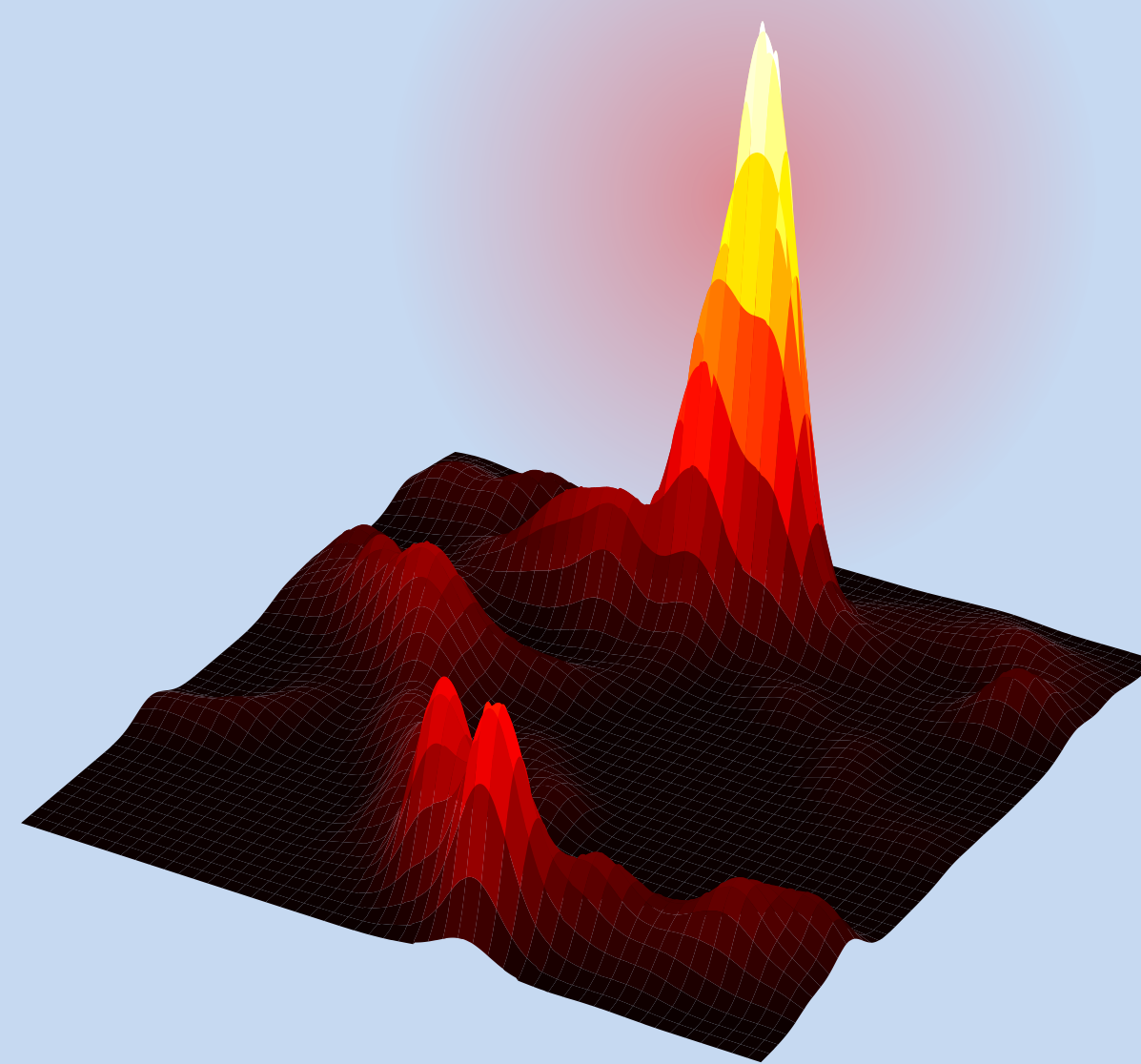
# SHOULD YOU PUT A RING ON IT?

### Power profile



$P \otimes \wedge$   
Convolution

### Hotspot detection



$$H_e = \frac{P_{\max} - P_{\text{net}}}{P_{\text{net}}}$$

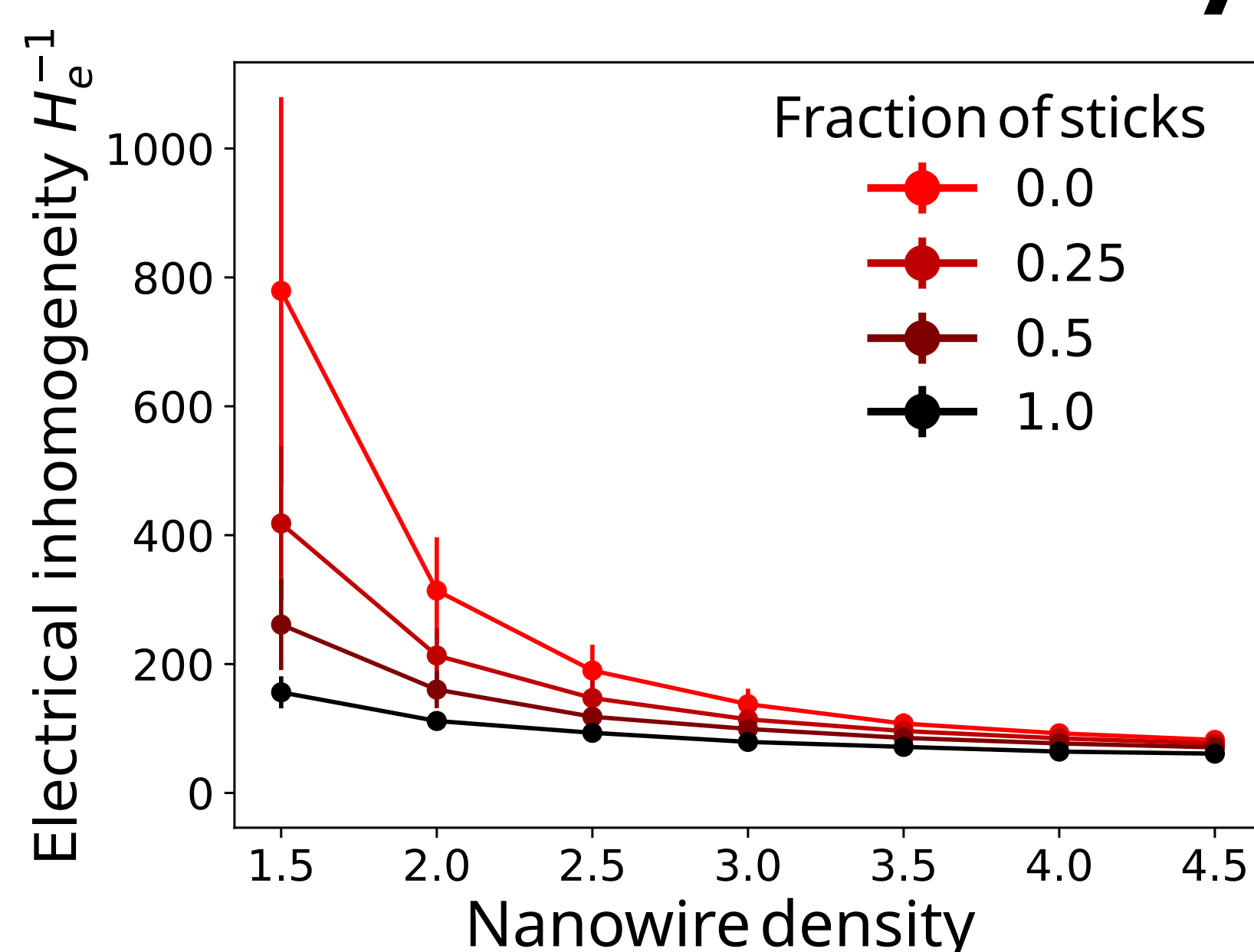
Peak maximum

Calculate Electrical Homogeneity

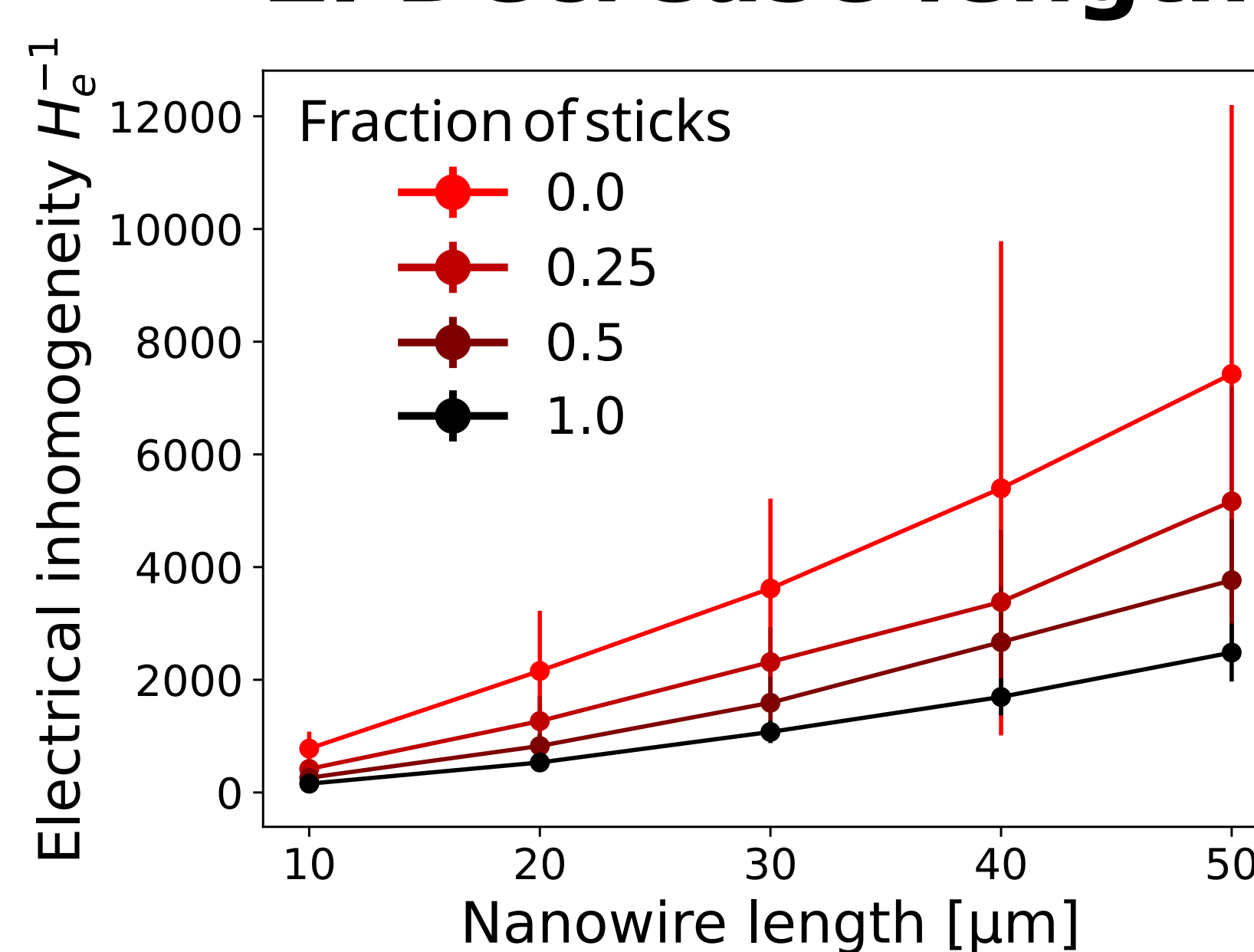
# OR SHOULD YOU GET STICKY WITH IT?

## How can we decrease hotspot occurrence?

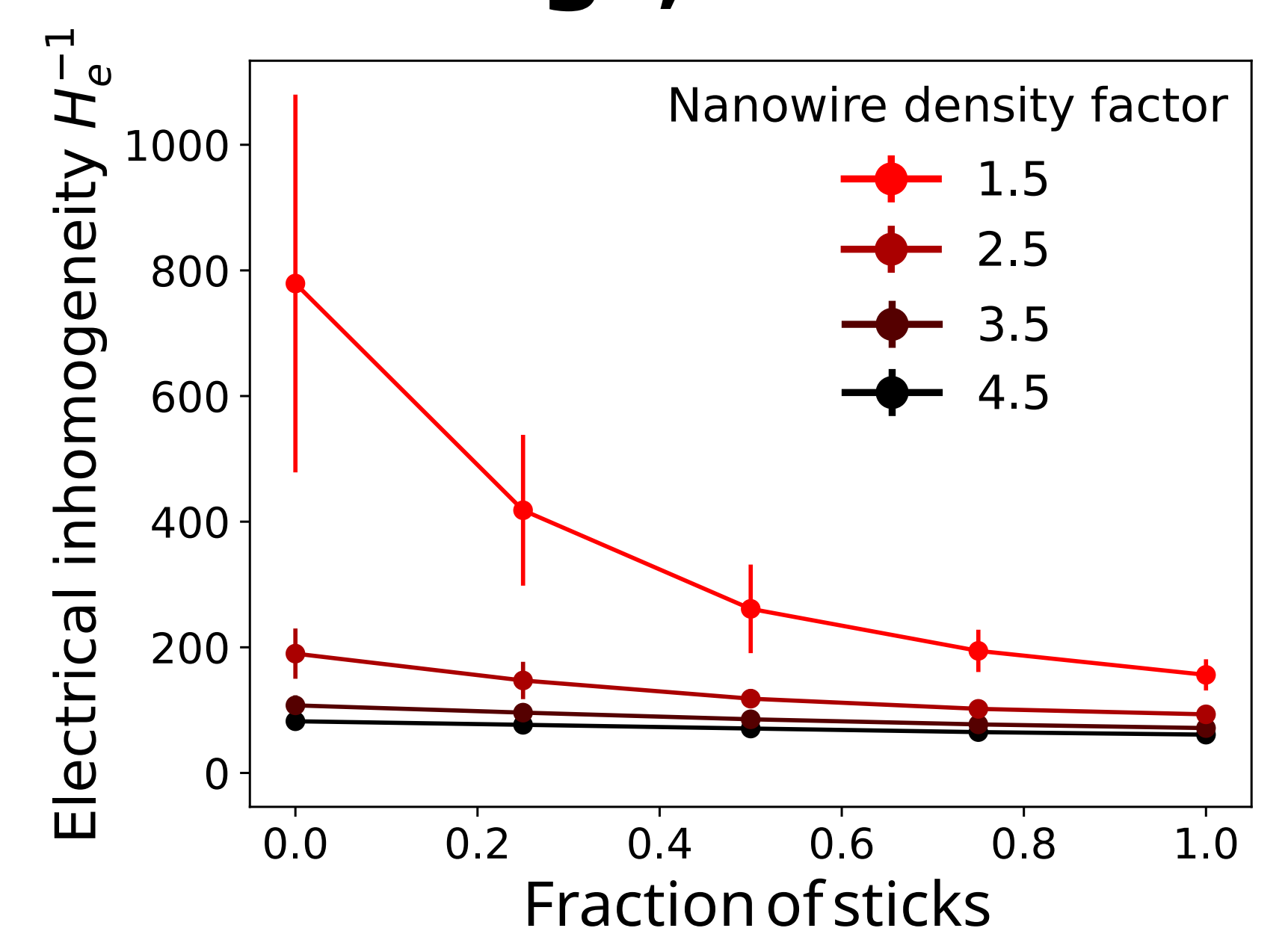
### 1. Increase density



### 2. Decrease length



### 3. Less rings, more sticks!



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Pictograms:  
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Theory Lab UHasselt: The research of our group focuses on nonequilibrium statistical physics. We deal mostly with a theoretical foundation for this theory, but also make the connection with applications in physics, biology and nano-technology. We have worked on work and fluctuation theorems (both for classical and quantum systems), microscopic theories for entropy production, thermodynamic efficiency at maximum power, stochastic thermodynamics, Brownian motors and refrigerators, electrochemical and electro-optical nano-devices, knots in macromolecules, non-equilibrium