



Hydrodynamics of Flocking Chiral Ferromagnetic Nanoparticles

Alireza Fazeli

Doctoral Candidate

SoftSimu Research Group

Department of Applied Mathematics

University of Western Ontario

alr.fazeli@gmail.com

Supervisor:

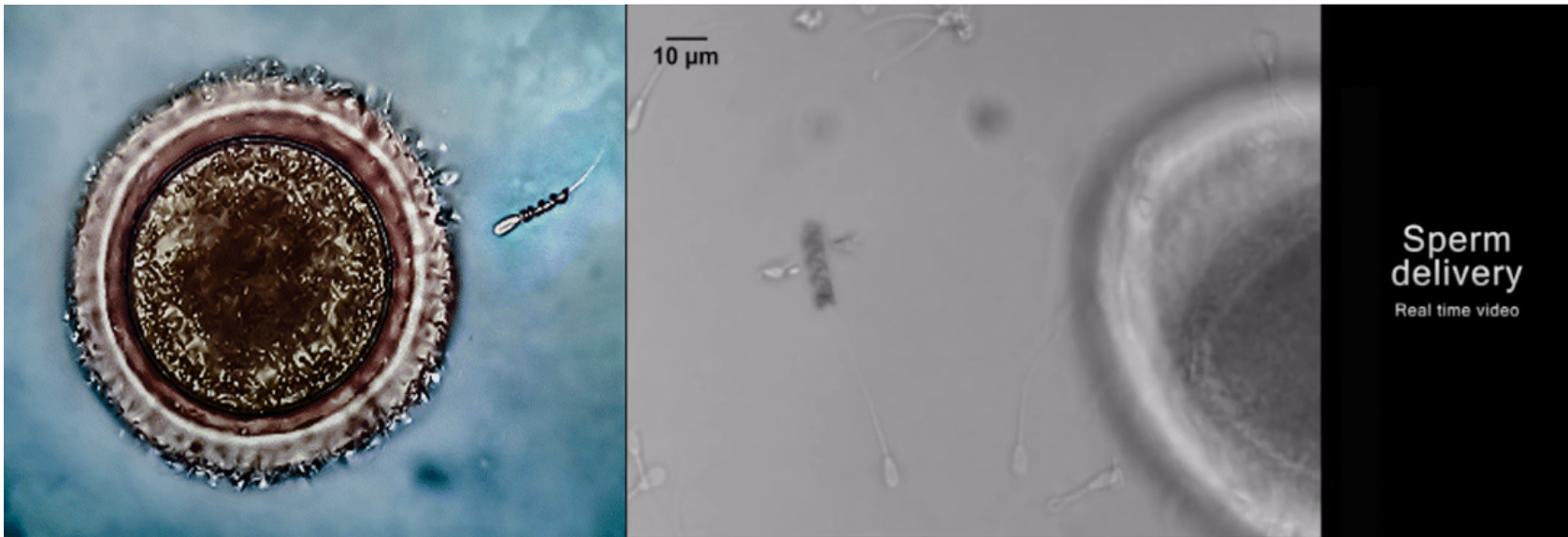
Prof. Mikko Karttunen



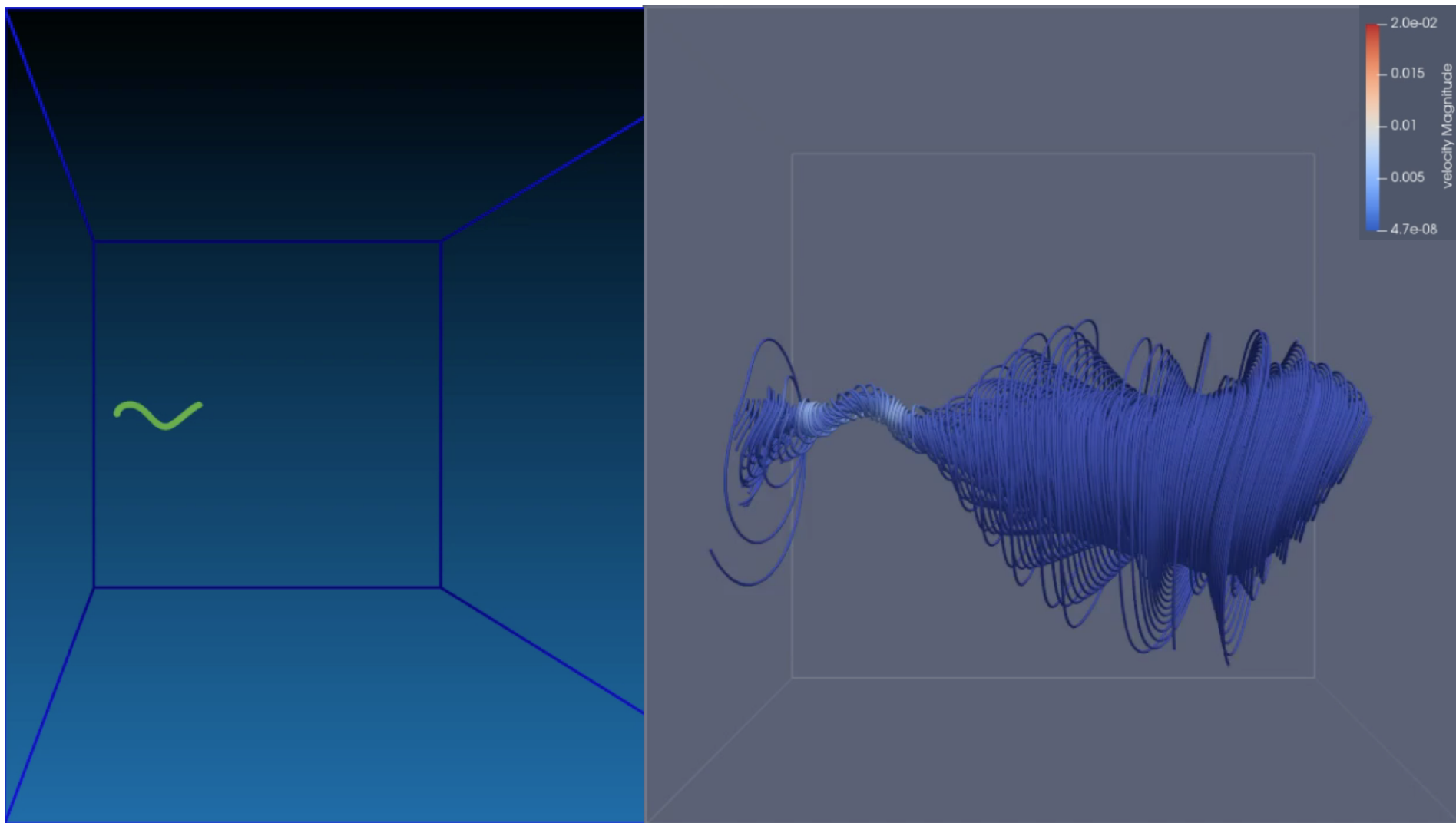
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Some application of nano/micro swimmers:

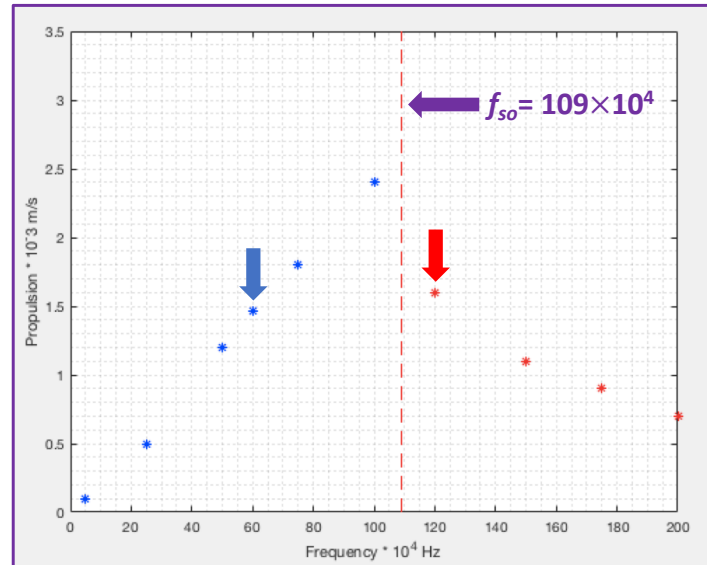
- Targeted drug delivery
- Microfluidics
- Assisted fertilization
- etc...



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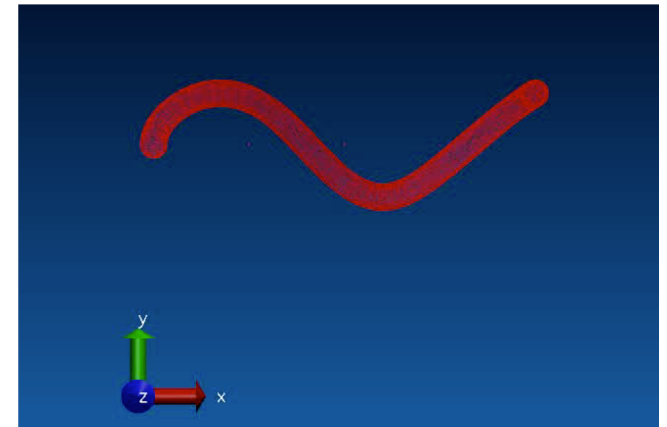
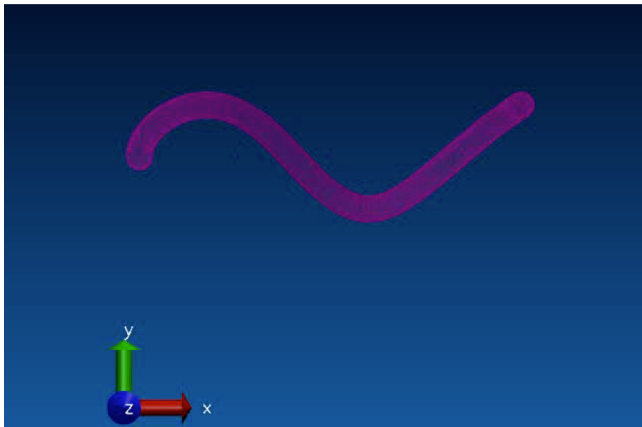
Dependence of propulsion on frequency:



$f = 600 \text{ kHz}$ (that is $< f_{so}$)

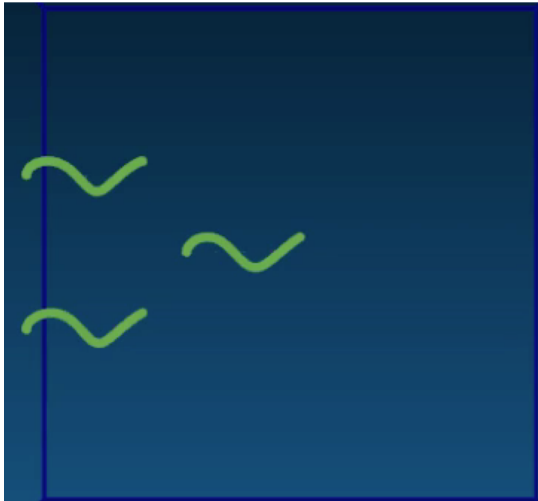
$f = 1200 \text{ kHz}$ (that is $> f_{so}$)

$Re = 2.7 \times 10^{-4}$

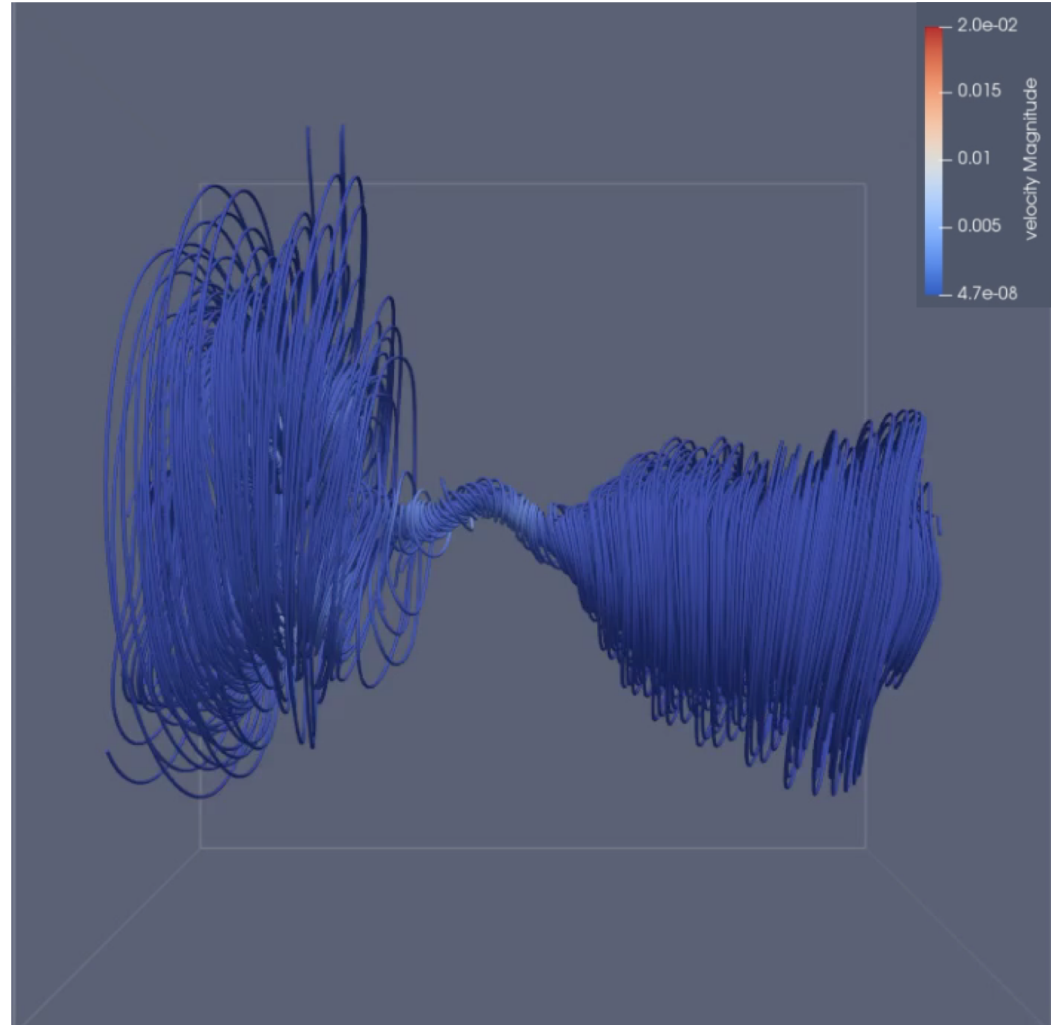


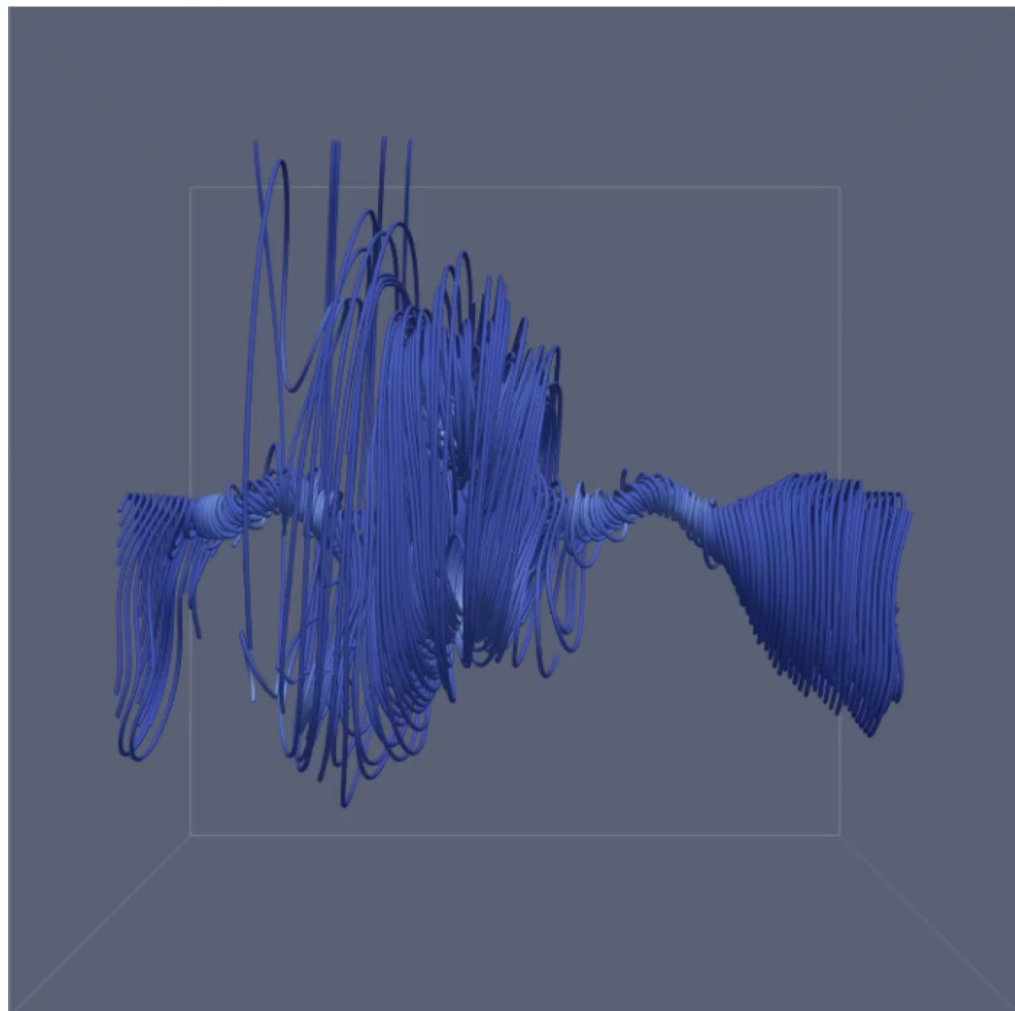
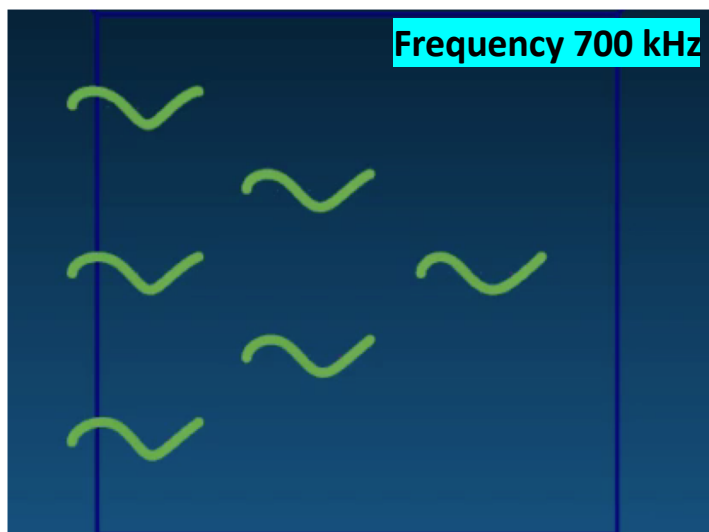
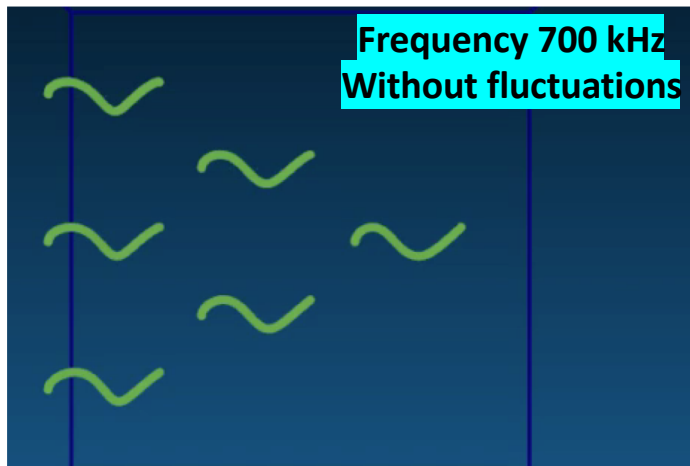


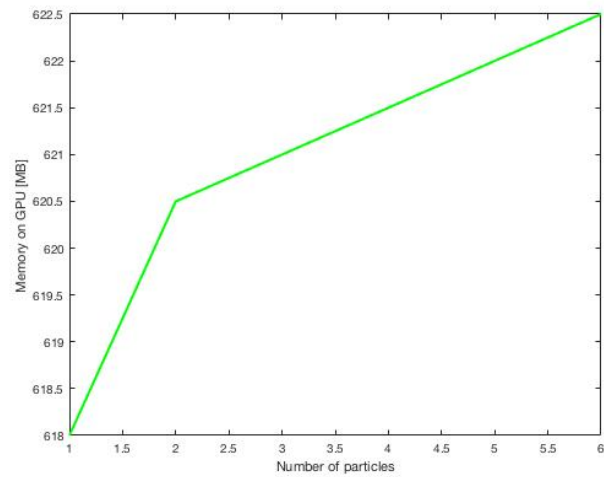
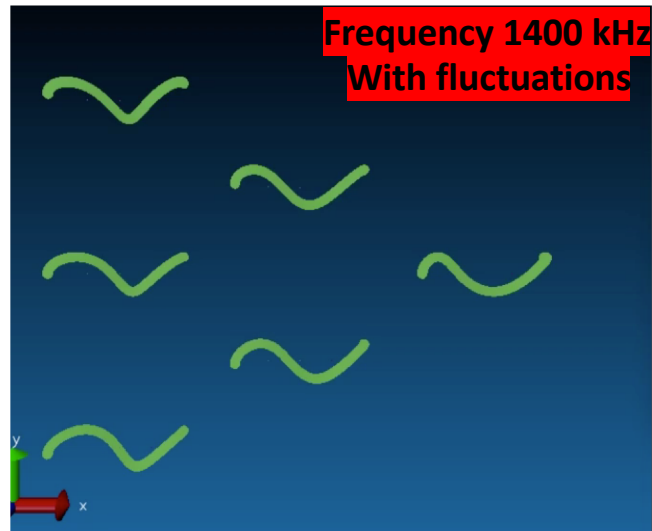
Without temperature
fluctuation



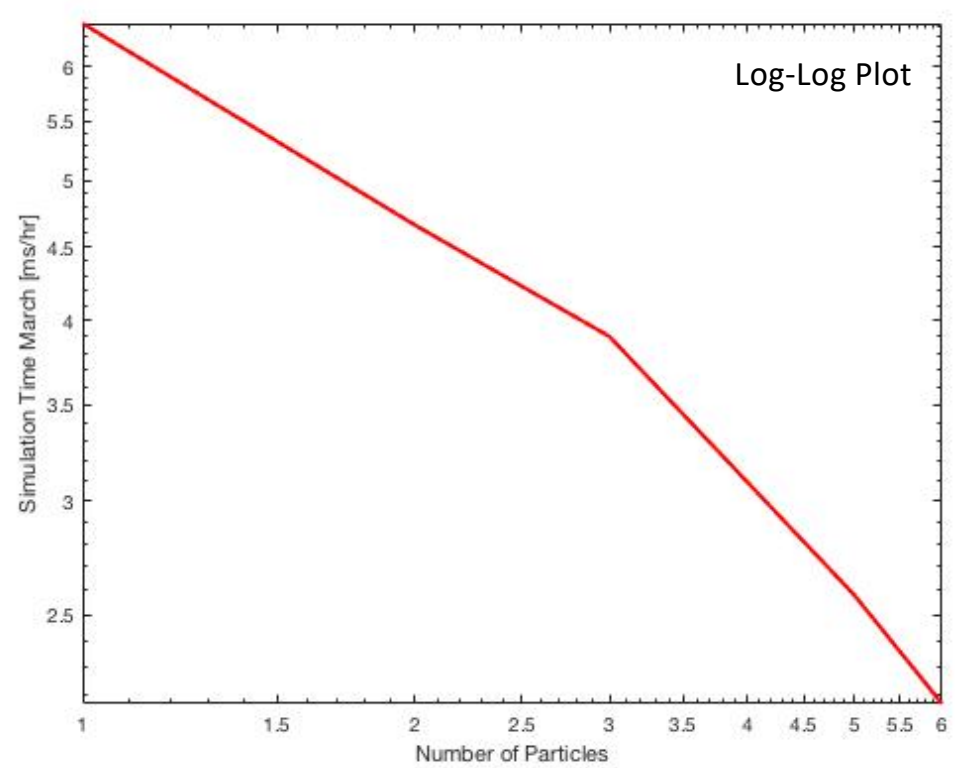
With temperature
fluctuation







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Amber ff99SB* (2)

Comparison of secondary structure formation using
Amber ff99SB-ILDN Amber ff99SB-ILDN Amber ff99SB
Amber ff99SB-ILDN Amber ff99SB-ILDN
PDB: 1G8A 4380a PDB: 1G8A 4380a
in microsecond molecular dynamics simulations
by Ello Cino, Wing-Yu Chee and Nikko Mattinen
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