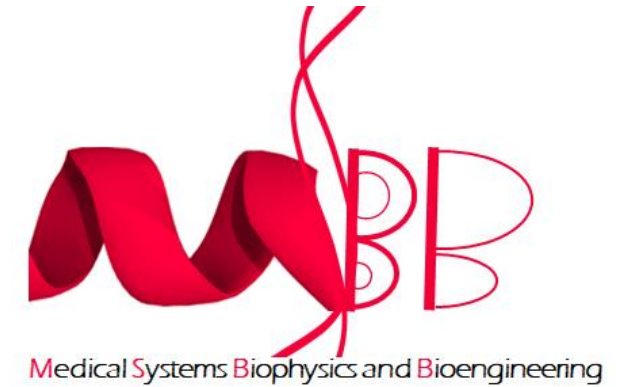


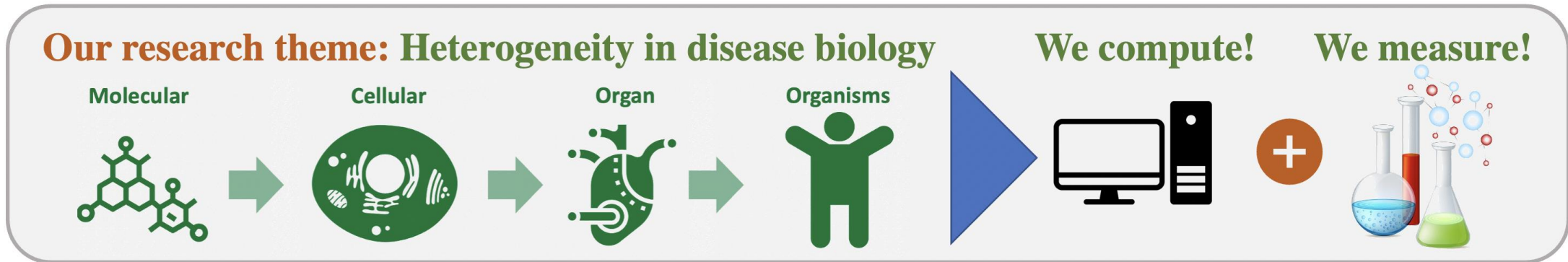
Me & my Research



Alireza Mashaghi, Principal Investigator @LACDR
 Materials Science (ETH Zurich); Physics (TU Delft, AMOLF)
 Medicine (Harvard, TUMS)



Current Research Areas & Ambitions



Single Molecule

IDPs; Nuclear Receptors; 3D genome

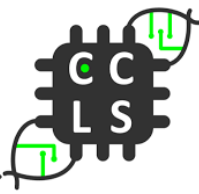
Single Cell

Metabolism
 Immunity
 Mechanics
 Drug
 Inflammation
 Immunopathology

Disease on Chip

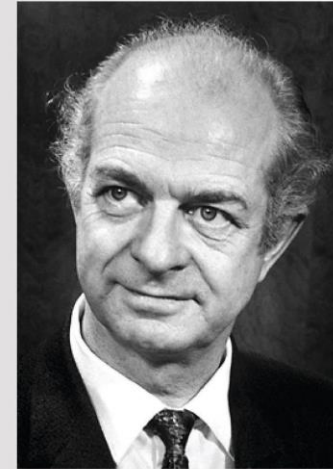
Viral infection (e.g., Ebola)
 Bioprinted disease models

My Research Expertise



Circuit topology

50 years after Linus Pauling



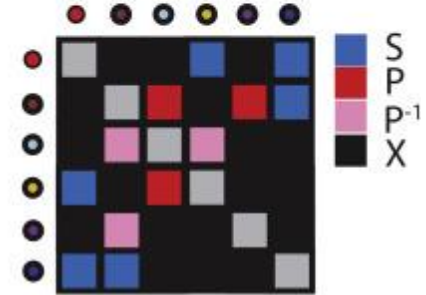
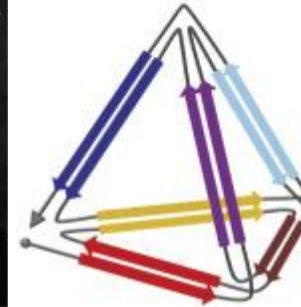
parallel (P)



series (S)



cross (X)

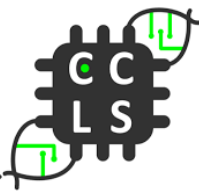


Collaborations



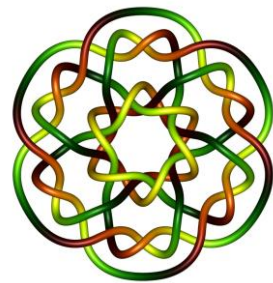
UNIVERSITAT DE BARCELONA





My Project Idea

- Topological analysis of **folded linear chains**!
- How to **compare** and **categorize** circuit topologies? How to **find patterns** (motifs)? How to **predict** topology?
- Vision/Mission
 - Expand the theory! Provide a user-friendly tool!
 - Characterize the biomolecular fold universe!
 - Fold topologies as diagnostic biomarkers! Fold topologies as drug targets!
 - Beneficiaries of project outcomes (medicine; physics; structural biology; genomics)
- Expertise needed to reach project goals, outcomes & impact



KNOT THEORY

