



Undergraduate Summer Internship in Systems Biology

Internship Project Description: Summer 2018

Project Title: Studying the collective motions of proteins

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Lab PI Name: Doeke Hekstra

Project Description: We try to study proteins as small molecular machines, using electric field pulses to push and pull on proteins, and X-ray crystallography to see how they move in response. As a result, we can now explore the mechanics of proteins just like one would study, for example, the mechanics of a car.

The aim of this summer project would be to extend the range of timescales on which this experiment is possible. This may include physical and chemical ways to clog protein crystals, new ways of mounting them, and optical and electronic measurements of the properties of electric fields within protein crystals. As a bonus you get to blow up lots of crystals.

Depending on progress, this project could lead to co-authorship on a short paper. Having completed basic course work in physical chemistry would come in handy.

Further reading: www.nature.com/articles/nature20571