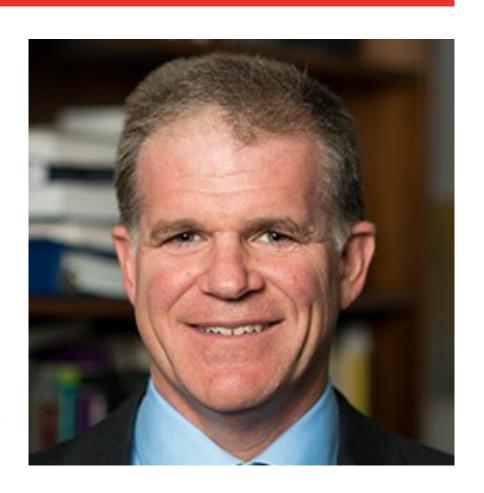
The Department of Mathematical Sciences Welcomes

2022 Taft Lecturer

## Dr. David Chopp

**Professor** 

Department of Engineering Sciences and Applied Mathematics
Northwestern University



Thursday, November 10th, 2022 Swift Hall Room 800 3:45-4:45 pm

## Modeling bacterial biofilms using the level set method.

Level set methods have developed into a powerful tool for computing solutions to moving interface problems of all types. In this talk, I will give a brief introduction to the level set method followed by a few examples of how it has been applied to simulating bacterial biofilm models including cell-to-cell signaling by Pseudomonas aeruginosa, microbial fuel cells using Geobacter sulferreducens, and coordination of nutrient utilization by Bacillus subtilis biofilms. I will focus on how the level set method is used for each of these models as well as discuss the unique biological insights we were able to gain by utilizing the mathematical models.

Refreshments will be served 2:45-3:20 pm in the Math Faculty & Graduate Student Lounge Room 4118 French Hall West

