Short Course on Algorithms for models involving interfaces in image processing and vision
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Part 1 May 15, 2:00-3:00
Part 2 May 16, 3:30-4:30
Part 3 May 17, 11:10-12:00
Part 4 May 18, 11:10-12:00
Fields Institute, Room 230

Abstract:
Many of the variational models of image processing and computer vision involve optimizing an energy over interfaces. An important example is image segmentation, where the goal is to partition the image domain into regions containing distinct objects. Typically, the models include a geometric penalty term, such as perimeter or Euler's elastica energy. We will discuss several popular algorithms for computing these models, according to the following outline:

1. Summary of relevant image processing models,
2. The level set method and its connections with globally optimal minimization, 3. Phase field methods, 4. Diffusion generated motion-based algorithms.