Visualization Group

Integration-based Flow Visualization: overview and seeding strategies

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Abstract

   The analysis of flow phenomena holds an important role in several fields, such as engineering and medicine. Flow visualization techniques aim at easing the investigation process by depicting the flow data through graphical entities. Specifically, integration-based methods employ lines and surfaces in order to visualize the long-term behavior of fluid particles.

   This talk is divided in two parts. In the first part, I will introduce the concept of *integral structures* and present the formal mathematical definitions of integral curves and integral surfaces. In the second part, I will discuss the problem of *seeding*, that is, how to determine a proper placement of integral structures across the spatial and temporal domain. I will first summarize seeding strategies for integral curves, then focus on selected techniques for seeding stream surfaces.

   No prior knowledge of the topic is necessary for attending the talk.