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Detection of Closed Hyperstreamlines

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"Detection of Closed Hyperstreamlines"

The analysis and visualization of tensor fields is a central problem in visualization. Topology based methods based on investigating the eigenvector fields of second order tensor fields have gained increasing interest in recent years. In this talk, a method for detecting closed hyperstreamlines in tensor fields as a topological feature will presented. It is based on a special treatment of cases where a hyperstreamline reenters a cell to prevent infinite cycling during hyperstreamline calculation. The algorithm checks for possible exits of a loop of crossed edges and detects structurally stable closed hyperstreamlines. These global features are not detected by conventional topology and feature detection algorithms used for the visualization of second order tensor fields.

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