Tracking Chemical Plumes

kterou přednese

Prof. Jiří Janata

School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA

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Abstrakt

Chemical leaking from a source creates a plume in a turbulent stream of water. Location of such source is important for various reasons. Some aquatic animals have evolved a complex strategy for location and navigation in chemical plumes, in order to find food, mates or to avoid predators. The purpose of our study has been to define the fundamental principles involved in such search strategy and to adopt them for engineered searchers (robots) used to locate of objects in water. It appears that at least in the near field, close to the source, a possible strategy could be based on correlation analysis of the fluctuating chemical signal acquired by an array of sensors rationally located in space. This is a story of our successful project, which was inspired by a blue crab, defined by Californian realtors and funded by DARPA. It provides an interesting insights into some bizarre aspects of US research funding.