Domain Recognition By Border Observation In Dimension 1 & 2

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Abstract:

The objective of this work, which was conducted at eNOV and Laboratory of Computer Science, Telecommunications and Applications (LITA) was to carry out the determination procedures to identify a domain by looking border. We proved that if well-defined signals are sent on the known edge $\Gamma_0$ of a regular field $\Omega$ of $\mathbb{R}^n$ ($n=1, 2$), where prevail some phenomena modeled by partial derivative equations and that following a certain number of ow measurements on the same edge, knowing $\int_{\partial \Omega} g d\Gamma$ (where $n$ indicates the normal external of $\partial \Omega$), it is possible to find a method which leads to the determination of $\Omega$. The demonstration were made in the stationary case with dimension $n=1, 2$ and arbitrary form.

Keywords: Distribution theory, Transmission theory, Domain recognition, border.