

网络、通信、安全

## 改善多源网络层析成像的可辨识性

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**摘要** 多源网络层析成像采用多源多目标的网络端到端测量, 可获得网状的拓扑结构, 突破了一般拓扑识别方法只能识别树状拓扑网络的限制。针对现有方法存在的可辨识性问题, 通过提取网络基本分析单元(两个源, 两个目的节点的子网)的层次特征来获得其完整的拓扑信息, 并提出了可辨识任意网络的融合算法来合并基本分析单元的拓扑信息, 估计网络网状拓扑结构。论证了该文方法具有更强的可辨识性, 仿真实验也证明了这一点。

**关键词** [多源多目标](#) [网络层析成像](#) [拓扑估计](#) [可辨识性](#)

分类号

## Improvement of multiple source network tomography identifiability

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### Abstract

Multiple source network tomography, which breaks through the limit that single source topologies discovery can only be used to tree topologies, can obtain mesh network topology by using end-to-end measurements of multiple source multiple destination. Aiming at the problem of identifiability in existed methods, this paper proposed a method of estimating the topology information by getting the hierarchical feature of basic analytical units (two sources, two destinations subnet). Furthermore, this paper introduced a new merging algorithm, which can identify any kind of network topology, to merge the topology information of basic analytical units and obtain the topologies of mesh networks. It has demonstrated that the method has stronger identifiability, which has also been proved by the simulation.

**Key words** [multiple source-multiple destination](#) [network tomography](#) [topology estimate](#) [identifiability](#)

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