

## 网格分形在识别电流互感器饱和中的应用

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### 摘要

分析了电流互感器饱和情况下变压器区内、外故障时差动电流的奇异特征, 提出一种利用网格分形原理防止变压器差动保护误动的新方法, 与自适应广义形态滤波器结合使用, 可在抑制各种噪声和干扰的同时, 完整保留信号的奇异特征。该方法不需要准确定位故障发生和差流出现的时刻, 利用差流网格变化曲线的极大值与极小值平滑域的相对大小, 通过设定合适的阈值, 能可靠识别变压器内部故障, 且不受励磁涌流的影响, 并能可靠识别转换性故障。动模试验结果证明了该方法的有效性和可行性。

关键词 [网格分形](#); [直流闭锁法](#); [变压器差动保护](#); [形态滤波](#); [电流互感器饱和](#)

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## Application of Grille Fractal in Identification of Current Transformer Saturation

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### Abstract

The different singularity characteristics of differential current of transformer differential protection under inner-zone and out-zone faults are analyzed while current transformer is saturated, then by use of grille fractal a new approach to prevent maloperation of transformer differential protection is proposed. Combining the proposed approach with adaptive generalized morphological filter, the singularity characteristic of signal can be fully reserved; meanwhile noises and interferences can be restrained. It is not necessary for the proposed approach to accurately determine the moment when fault occurs and differential current appears; by use of relative magnitude of smooth domain of maximal value and that of minimal value and by means of setting appropriate threshold, the inner fault of transformer can be reliably identified and the identification is not affected by inrush current; besides, the evolved fault can be reliably identified. Results of dynamic simulation prove that the proposed approach is effective and feasible.

Key words [grille fractal](#); [direct current blocking method](#); [transformer differential protection](#); [morphological filter](#); [current transformer saturation](#)

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