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基于网格分形的励磁涌流识别新方法

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摘要
提出了一种基于网格分形和自适应形态滤波器识别励磁涌流与内部故障电流的新方法。在利用网格分形对差动电流进行分析的同时，通过广义形态滤波器结合自适应算法滤除网格变化曲线的各种噪声和扰动信号。在比较励磁涌流与短路电流网格曲线各自特点的基础上，提出了一种新型变压器保护方案，该方案不受Y/D接线的变压器D侧环流助增作用的影响。动模试验分析结果表明该原理能迅速、可靠地切除变压器内部故障，对轻微故障也有较高的灵敏度。

关键词 变压器差动保护；网格分形；自适应形态滤波；助增电流；励磁涌流

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A Novel Method to Identify Inrush Current Based on Grille Fractal

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Abstract
Based on grille fractal and self-adaptive morphological filter, a novel approach to identify inrush current and internal fault current is presented. Side by side with analyzing differential current by grille fractal, the proposed method can filtrate noises and interference signals of grille curves by means of generalized morphological filter combining with self-adaptive algorithm. On the basis of comparing the feature of inrush current’s grille curve with that of fault current, a novel transformer protection scheme is proposed, which is not affected by add-assist circulation current at delta side on Y/D connection transformer. Results of dynamic tests show that the proposed method is sensitive to slight internal fault and the transformer can be switched off quickly and reliably by protection device based on the proposed method while internal fault of transformer occurs.

Key words transformer differential protection；grille fractal；self-adaptive morphological filter；assistant current；inrush current

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