

高电压技术

气体绝缘组合电器尖端放电发展过程的试验研究

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摘要:

研究局部放电发展过程有助于对放电故障的严重程度做出准确的评估, 给出合理的设备维修策略。尖端放电是发生在气体绝缘组合电器设备中的一种常见的典型局部放电故障, 通过研究尖端放电发展过程中各个阶段的特高频局部放电检波信号的放电模式特征, 给出了各放电发展阶段中放电特征参数随试验时间的发展变化规律, 为该类型局部放电故障严重程度的诊断提供了依据。研究表明: 对于尖端放电而言, 放电幅值和放电次数随试验时间的延长表现出先增大后减小的趋势, 正负半周上放电次数之比和正负半周上最大放电幅值之比随试验时间的延长表现出逐渐增大的趋势, 放电次数的降低速度随放电相对幅值的增加越来越快。

关键词: 气体绝缘组合电器 尖端放电 发展特性 变化规律

Experimental Study on Development Characteristics of Point Discharge in GIS

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Abstract:

Study on the development characteristics of partial discharge contributes to make an accurate assessment of the severity of discharge and give a reasonable maintenance strategy for the equipment. In view of the fact that point discharge is a common and typical partial discharge failure occurred in gas insulated switchgear (GIS) equipment, by means of researching the discharge pattern features of detection signals of ultra high frequency (UHF) partial discharges during various stages in point discharges development process, the development and variation law of discharge characteristic parameters with testing time during various discharge stages are given to offer the fundamental to assess the severity of this type of partial discharge failure. Research results show that as for point discharge the amplitude of discharge and discharge times increase at first and decrease then along with the prolongation of testing duration; the ratio of discharge time in positive-half period to that in negative-half period as well as the ratio of discharge amplitude in positive-half period to that in negative-half period present the trend of gradual increase; the decreasing velocity of discharge times will be faster along with the increase of relative amplitude of the discharge.

Keywords: gas insulated switchgear (GIS) point discharge development characteristics variation law

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