

反应堆工程

# 基于声发射技术的蒸汽发生器传热管点腐蚀研究

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**摘要** 蒸汽发生器传热管的腐蚀是影响核动力装置安全运行的重要问题之一, 传热管的腐蚀以点腐蚀的危害最为常见。利用声发射仪器, 对蒸汽发生器传热管进行腐蚀实验时的信号进行采集和分析, 并对腐蚀点进行了准确定位。实验结果表明, 传热管的点腐蚀经历3个阶段: 发展期、平稳期和迅速发展期。声发射技术能比其它任何无损检测方法更早地发现传热管腐蚀损伤, 可对蒸汽发生器的安全和运行情况进行在线实时监测, 具有重要的意义。

**关键词** [蒸汽发生器; 点腐蚀; 声发射技术](#)

分类号

## Analysis Corrosion Dots of Steam Generator Tubes Based on Acoustic Emission Technique

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**Abstract** The corrosion inspection of steam generator tubes is an important problem which ensures the security of the nuclear plants. The most conventional corrosion of the tubes are corrosion dots. Based on the principle of acoustic emission technique, acoustic emission signals about tubes of steam generator gathered by instrument were analyzed, and the corrosion dots in the tubes were located accurately. The results show that corrosion dots of heat transfer tube are through three phases: Development period, stable period and rapid development period. Acoustic emission technique can be found earlier corrosion damage than any other non-destructive testing methods. The real-time inspection on the work of steam generator was achieved, according to which the corrosion dots can be judged timely.

**Key words** [steam generator](#) [corrosion dot](#) [acoustic emission technique](#)

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