

反应堆工程

# 反应堆冷却剂承压边界泄漏监测技术及其发展

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**摘要** 反应堆冷却剂承压边界泄漏监测是反应堆安全运行的重要保障。本文评述了反应堆冷却剂承压边界泄漏监测技术的发展状况及其特点, 重点分析了放射性泄漏监测技术、声发射泄漏监测技术的发展, 并对核反应堆泄漏监测技术未来的发展趋势进行了初步探索。分析指出: 承压边界泄漏监测技术发展的目标是尽可能提高其响应速度、灵敏度和可靠性, 及时为反应堆运行及决策人员提供有效的操纵及决策依据; 而实现承压边界的整体泄漏监测、全寿期“健康”状态综合监测则是反应堆承压边界泄漏监测技术发展的方向和重要趋势。

**关键词** [核反应堆](#) [承压边界](#) [泄漏监测技术](#)

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## Development of Pressure Boundaries Leak Detection Technology for Nuclear Reactor

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**Abstract** The leak detection for the pressure boundaries is an important safeguard in nuclear reactor operation. In the paper, the status and the characters on the development of the pressure boundaries leak detection technology for the nuclear reactor were reviewed, especially, and the advance of the radiation leak detection technology and the acoustic emission leak detection technology were analyzed. The new advance trend of the leak detection technology was primarily explored. According to the analysis results, it is point out that the advancing target of the leak detection technology is to enhance its response speed, sensitivity, and reliability, and to provide effective information for operator and decision-maker. The realization of the global leak detection and the whole life cycle health monitoring for the nuclear boundaries is a significant advancing tendency of the leak detection technology.

**Key words** [nuclear reactor](#) [pressure boundaries](#) [leak detection technology](#)

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