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## 中国核动力院U-Mo合金燃料研究现状及进展

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收稿日期 修回日期 网络版发布日期:

**摘要** 目前, U-Mo合金燃料是研究试验堆新一代燃料的研究重点。文章介绍U-Mo合金燃料在中国核动力研究设计院(NPIC)的研究现状和进展。NPIC于2006年正式开始研制U-Mo合金弥散燃料元件, 几年间开展的研究工作主要有: U-Mo合金熔炼,  $\gamma$ 相U-Mo合金粉末制备, (U-Mo) (Al-Si)弥散燃料板制造工艺研究, U-Mo合金与基体材料、包壳材料和阻挡材料诸如Al、Nb、Zr、Mg等的相容性研究, Si添加到Al基体中对U-Mo/Al反应的影响以及U-Mo合金燃料成分分析及无损检测方法研究等。目前, NPIC已制备出基本满足要求的(U-Mo) Al弥散燃料板, 并计划于2010年前掌握满足技术要求的改进型(U-Mo) Al弥散燃料板的制造技术。

**关键词** [U-Mo合金](#) [研究现状](#) [粉末制备](#) [燃料板制造](#)

分类号

## Research Status and Progress of U-Mo Alloy Fuel in Nuclear Power Institute of China

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**Abstract** U-Mo alloy fuel is the research focus on new-type fuel for research and test reactor. The research status and progress of U-Mo alloy fuel in Nuclear Power Institute of China (NPIC) was introduced in this paper. U-Mo alloy dispersion-type fuel was started to study since 2006. In several years, much works have been done, including the smelting of U-Mo alloy, the preparation of  $\gamma$ -phase U-Mo alloy powder, the fabrication of (U-Mo) (Al-Si) dispersion fuel plate, the compatibility between U-Mo alloy and cladding or matrix materials such as pure Al, Al-Si alloy, pure Nb, Zr alloy and pure Mg. In addition, the methods of elements analysis and non-destructive examination for U-Mo alloy fuel plate were studied. Based on these research works, the improved U-Mo dispersion fuel plates have been fabricated. The NPIC plans to master the fabrication technology of improved (U-Mo) (Al-Si) dispersion fuel plates which satisfy the technical requirements by 2010.

**Key words** [U-Mo alloy](#) [research status](#) [powder preparation](#) [fuel plate fabrication](#)

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