

## 原子炉・核燃料の安全制御と利用効率の向上

Improvement of safety control or utility efficiency for nuclear reactors and fuels



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Keyword:  
reactor physics, fuel engineering, reactor simulation

原子力工学の中でも特徴的な領域である原子炉物理学、原子炉工学、核燃料工学、放射線検出・計測の基礎理論をもとに、計算機プログラム、原子炉シミュレータ、放射線計測システムを活用し、原子炉・核燃料の安全な制御・有効な利用のレベルアップに役立つ基礎研究に取り組む。

取り組む研究課題の例

- 1) 原子炉・核燃料の核特性・燃焼特性の解明と有効な利用法の考案
- 2) 使用済核燃料の線量・未臨界度の推定と安全な取扱法の提案
- 3) 原子炉シミュレータ(研究炉・発電炉)による制御技術の検証と安全策の向上

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Reactor physics, nuclear fuel engineering and radiation detection & measurement are most distinctive realms in nuclear engineering. Professional calculation codes, nuclear reactor simulators and radiation measurement systems are more innovative tools for the realms. On the basis of the theories of those realms and with these innovative tools, fundamental researches for the level-up of safe control or efficient utilization of nuclear reactors and fuels are progressed.

Themes / topics

- 1) Reaction properties of nuclear reactors and fuels are clarified to propose more effective operations of power generation plants.
- 2) Radioactivity and criticality of spent fuels are identified to suggest the effective techniques and beneficial strategies in fuel recycle.
- 3) Nuclear reactor simulators are developed and improved to understand and estimate the reactor performance or event scenarios.

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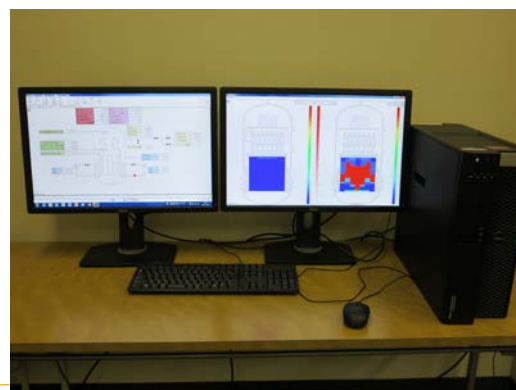


図 原子炉シミュレータ (左図：研究炉用、右図：発電炉用)。