Accepted Manuscript

An Adaptive Metamodel-Based Subset Importance Sampling approach for the assessment of the functional failure probability of a thermal-hydraulic passive system

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 PII:
 S0307-904X(17)30265-2

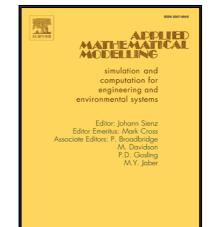
 DOI:
 10.1016/j.apm.2017.04.003

 Reference:
 APM 11711

To appear in:

Applied Mathematical Modelling

Received date:9 June 2015Revised date:8 March 2017Accepted date:3 April 2017



Please cite this article as: Nicola Pedroni, Enrico Zio, An Adaptive Metamodel-Based Subset Importance Sampling approach for the assessment of the functional failure probability of a thermal-hydraulic passive system, *Applied Mathematical Modelling* (2017), doi: 10.1016/j.apm.2017.04.003

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Highlights

- We assess the small failure probability of a nuclear passive system by Monte Carlo
- We use a fully nonparametric, quasi-optimal Importance Sampling Density (ISD)
- We use Subset Simulation and metamodels to iteratively approximate the optimal ISD
- We apply the method to the decay heat removal system of a Gas-cooled Fast Reactor
- We compare the proposed approach to several advanced methods of literature

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