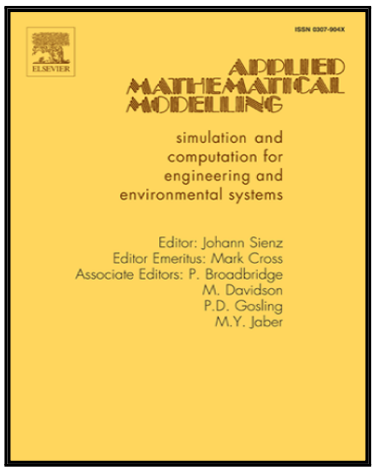

A hybrid self-adaptive conjugate first order reliability method for robust structural reliability analysis

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Highlights

- First order reliability method (FORM) is improved using conjugate search direction.
- Two conjugate methods are proposed using self-adaptive (SAC) and hybrid self-adaptive (HSAC) conjugate formula.
- The SAC and HSAC are adaptively computed using the FR conjugate method in order to satisfy the sufficient descent condition.
- Efficiency and robustness of SAC and HSAC are tested using seven reliability problems.
- Proposed SAC and HSAC methods are shown the remarkable efficiency and robustness compared to the existing FORM formula.