Rotating shaft's non-linear response statistics under biaxial random excitation, by path integration

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Highlights

- A unique analytical solution available for biaxially excited Jeffcott rotor system was used to validate the proposed advanced path integration technique
- Dynamic system stability and extreme response statistics have been studied
- Novel improvements to an existing Path Integration scheme have been discussed (e.g. using MC pre-estimated initial PDF)
- Numerical results were in a good agreement with analytical results, therefore main contribution of this paper is a 100 percent reliable and independent confirmation of the path integration technique as a tool for assessing the dynamics of the kind of stochastic mechanical models considered in this paper