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Reliability based design optimization of coupled acoustic-structure system using generalized polynomial chaos

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**Highlights**

- An analytical formulation and numerical implementation of the response of coupled structure-acoustic system were performed.
- A probabilistic analysis is addressed to account for variability of different parameters.
- A reliability based design optimization (RBDO) using the generalized polynomial chaos (gPC) is proposed.
- The optimum safety factor (OSF) method combined with the gPC procedure is applied to the coupled acoustic-structure system in order to reduce the computational cost of the classical approach of RBDO.

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