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A rapid and efficient isogeometric design space exploration framework with application to structural mechanics

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**Highlights (for review)**

- A rapid isogeometric design space exploration framework providing the user with a full-system response is presented.
- Within this framework, a surrogate model to a PDE system solution vector is constructed using a nodal or modal polynomial expansion in the design variables and associated sampling schemes based on tensor-product and sparse quadrature.
- Several numerical examples are presented within the context of structural mechanics, demonstrating the effectiveness of the proposed framework.

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