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Bayesian uncertainty quantification of turbulence models based on high-order adjoint

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**Highlights**

- Turbulence model parameters are inferred using Bayesian asymptotic tools
- Higher-order adjoint techniques are developed for Spalart-Allmaras model
- Adjoint formulation can be conveniently used for uncertainty propagation
- Adjoint techniques are computationally efficient alternatives to sampling methods
- Well-studied flows validate the effectiveness & capabilities of adjoint techniques

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