

## Model Certification and Adaptivity

The models and discretization methods employed in modern engineering and science are becoming increasingly diverse and heterogeneous. Consequently, the need to assess the quality of these models requires new approaches to model certification, understood here in a broad sense. This includes both a posteriori error estimation and statistical estimation of model error, for example. The minisymposium covers contributions that address the quantification and estimation of errors or discrepancies of physics-based or data-driven models across relevant parameter ranges. Also of interest is the use of quantified errors to design adaptive methods for model generation, as well as mesh and basis refinement. Applications of existing approaches to complex examples are equally welcome. Areas of interest include, but are not limited to:

- Adjoint and residual-based a posteriori error estimation for PDE-based models
- Gaussian process and neural network modeling of model discrepancy
- Error-controlled adaptive modeling, in particular dictionary-based approaches
- Accuracy of parametric models or models with uncertainty
- Certification for surrogate and reduced order modeling