

INVERSE PROBLEMS

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ABSTRACT

The theory and applications of inverse problems have long made a silent imprint in science and engineering as a critical tool in establishing the link between model and observations. In recent times, however, inverse problems have in many disciplines taken the centre stage - a trend spurred not only by the advances in sensor technologies, wireless communications, and signal processing, but also by the necessity to obtain physically relevant parameters and input for computational models with ever-growing complexity and sophistication. Examples of such disciplines include seismic and medical imaging, non-destructive material characterization, and structural health monitoring.

In this spirit, our minisymposium aims to foster the exchange of new ideas by gathering the state-of-the-art developments pertaining to inverse problems and computational mechanics. It aims to include, but is not limited to, the computational and mathematical treatment of problems such as:

- Structural health monitoring
- Nondestructive material characterization
- Prognosis health management
- Biomedical imaging and tissue characterization
- Probabilistic inference
- Model-class selection
- Inverse scattering
- Ultrasound
- Seismic inversion
- Inverse problems in heat transfer
- Damage characterization
- Optimal design of experiments
- Real-time model updating