Specialty area: Cardiac function, perfusion and tissue characterization

Daniel Messroghli, MD  dmessroghli@dhzb.de

Highlights
- Overview on technical approaches for parametric mapping of the heart
- Confounding factors when measuring relaxation times in the heart
- State-of-the-art in 2014

Parametric mapping
- Target audience
  CMR scientists who would like to establish or optimize parametric mapping at their site
- Outcome/ Objectives
  Learners should be able to
  - select the most appropriate mapping techniques for their individual purposes by understanding the pros and cons of existing methods
  - understand the limitations of parametric mapping in terms of accuracy and precision
- Purpose
  To give an overview on existing mapping approaches with their respective pros and cons
- Topics
  - Basic concepts of parametric mapping: T1, T2, T2*
  - Specific requirements in cardiac applications
  - Acquisition – postprocessing – analysis
  - Genealogy of mapping techniques
  - Specific characteristics of popular mapping techniques (e.g. MOLLI – ShMOLLI – SASHA)
  - Confounding factors (heart rate etc.)
  - Accuracy vs. precision in parametric mapping
  - Current state-of-the-art (pulse sequences, acquisition protocols, postprocessing, analysis)
- Conclusion
  Existing mapping techniques can provide robust information on myocardial tissue properties when applied appropriately.
- References
  Myocardial T1 mapping and extracellular volume quantification: a Society for Cardiovascular Magnetic Resonance (SCMR) and CMR Working Group of the European Society of Cardiology consensus statement.

  Advances in parametric mapping with CMR imaging.
  Salerno M, Kramer CM.