

# ISMRM WORKSHOP ON MR Spectroscopy: Frontiers in Molecular & Metabolic Imaging



15-18 October 2024



Mass General Brigham Assembly Row  
Boston, MA, USA



*Late-Breaking Abstract Submission Deadline: 12 September 2024 at 23:59 UTC*

*Early Registration Deadline: 16 September 2024 at 23:59 UTC*

## OVERVIEW

Magnetic resonance spectroscopy (MRS) can simultaneously image up to 20 metabolites in the brain and assess their concentration and the dynamic change of their concentrations under functional tasks. MRS is capable of measuring intrinsic metabolism non-invasively without the need of contrast agents and can probe metabolic enzymatic rates that are not accessible by other imaging techniques. Numerous studies have demonstrated the considerable value of MRS for clinical applications. Great progress has been realized over the last few years in the performance of MRS resulting in fast and high-resolution imaging methods with robust performance in clinical and research investigations.

The ability to probe metabolic alterations is important to understand disease mechanisms and for patient management, including diagnosis, treatment planning, and treatment response assessment. In addition, MRS allows to probe metabolism in healthy individuals and in healthy tissues of patients providing important information about normal function.

This workshop will present the state of the art in technical performance and clinical applications of MRS, which will be relevant to a broad audience of scientists and clinicians. In particular, the topics of interest include: the fundamentals of MRS methodology; biological and clinical relevance of metabolism; advanced MRS methodology; and clinical and pre-clinical applications in healthy conditions and diseases such as cancer, neuropsychiatric disorders, and inborn errors of metabolism. Practical sessions of MRS imaging protocols and data analysis will be demonstrated during this workshop as well.

The program will combine lecture sessions provided by experts in the field and abstract sessions to present the work of attendees. This meeting will provide a forum to share best practices, disseminate knowledge and methodology, and create consensus and standardization through panel discussions and practical demonstrations.

## EDUCATIONAL OBJECTIVES

Upon completion of this activity, participants should be able to:

- Describe metabolism in healthy state and metabolic alterations in disease pathology;
- Describe acquisition and processing steps of MRS, including pulse sequences and processing software;
- Summarize state-of-the-art advanced 1H-MRSI methodology;
- Describe X-nuclei MRS imaging;
- Describe hyperpolarization techniques; and
- Explain complementary modalities of metabolic and molecular imaging.

## TARGET AUDIENCE

Scientists and clinicians interested in learning the state of the art of in-vivo MRS to image metabolism under healthy and disease conditions.

## ORGANIZING COMMITTEE

**Co-Chairs:** Ovidiu C. Andronesi, M.D., Ph.D. & Chao Ma, Ph.D

**International Scientific Committee:** Henk De Feyter, Ph.D.; Candace Fleischer, Ph.D.; Gilbert Hangel, Ph.D.; Christoph Juchem, Ph.D.; Fan Lam, Ph.D.; Yan Li, Ph.D.

**Local Organizing Committee:** Jerome L. Ackerman, Ph.D.; Fei Du, Ph.D.; Christian T. Farrar, Ph.D.; Borjan Gagoski, Ph.D.; Eva-Maria Ratai, Ph.D.; Matthew S. Rosen, Ph.D.; Yi-Fen Yen, Ph.D.

