

ISMRM WORKSHOP ON 40 Years of Diffusion: Past, Present & Future Perspectives



16-20 February 2025



Kyoto University Faculty of Medicine
Kyoto, Japan

Abstract Submission Deadline: 06 December 2024 | 23:59 UTC

OVERVIEW

The field of diffusion magnetic resonance imaging (MRI) has come a long way in the past 40 years, and this workshop celebrates the progress that has been made. From the early days of basic diffusion measurement techniques to the current state-of-the-art microstructure imaging and tractography methods, diffusion MRI has become an indispensable tool for both preclinical and clinical research.

The workshop will provide a comprehensive overview of the history of diffusion MRI, including the development of new pulse sequences, modeling, advancements in data analysis and image processing including AI, and applications in various areas of biomedical research: from neurology to psychiatry to oncology.

The workshop will also bring together pioneers and experts in the field to discuss the history and the latest advances in diffusion MRI, both in terms of methodological developments and applications. Through keynote lectures, panel discussions, and poster sessions, attendees will have the opportunity to get an overall picture on the current state of the art in diffusion MRI and to learn about what is cooking for the future through the latest research and cutting-edge technologies in the field.

Lastly, the workshop aims to bridge the gap between methodological development and clinical practice and provide a path for its integration in the near future.

Whether you are a seasoned researcher or a newcomer to the field, this workshop is the perfect opportunity to celebrate the achievements of the past 40 years in diffusion MRI and to look forward to the exciting developments yet to come.

EDUCATIONAL OBJECTIVES

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

- Define the fundamentals of diffusion MRI, data acquisition, preprocessing, and analysis;
- List the major applications of diffusion MRI, including its use in clinical and research settings in both brain and body imaging;
- Describe the latest developments in the field of diffusion MRI including hardware, acquisitions, microstructure modeling, multiparametric approaches, and artificial intelligence;
- Collaborate in bridging the gap between bench and bedside, as well as research and clinical practice, in order to facilitate the integration of diffusion MRI into clinical studies; and
- Collaborate with others to develop consensus strategies on how to perform diffusion MRI in each organ of the human body.

TARGET AUDIENCE

This workshop is designed for researchers (including Ph.D. candidates, postdocs, and professors); clinicians (e.g., radiologists, oncologists, neurologists, surgeons); neuroscientists, psychiatrists, psychologists, computer scientists, MR physicists, and engineers; MR technologists; machine learning engineers and government regulatory experts; and other nonprofits and members of the ISMRM Diffusion, ISMRM Cancer, and ISMRM Quantitative MR Study Groups.

ORGANIZING COMMITTEE

Co-chairs: Susie Huang, M.D., Ph.D. & Mami Iima, M.D., Ph.D.

Organizing committee: Maryam Afzali, Ph.D., Mary Bruno, B.Sc., R.T.(MRI), Santiago Coelho, Ph.D., Flavio Dell'Acqua, Ph.D., Sheryl Foster, M.H.Sc.(MRS)(MRI), Amy Howard, D.Phil., Farshid Sepehrband, Ph.D., Kurt Schilling, Ph.D., Marios Yiannakas, Ph.D.



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