

## 新潟脳神経研究会特別例会の御案内

日時：令和6年10月1日(火) 17:00～18:00

場所：中田記念ホール 脳研究所 旭町総合研究実験棟  
(統合脳機能研究センター) 6階

### 40 years of diffusion MRI



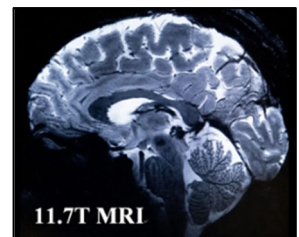
#### Denis Le Bihan, MD, PhD

NeuroSpin, Frédéric Joliot Institute for Life Sciences, CEA,  
Paris-Saclay University, Saclay, France

Human Brain Research Center, Kyoto University, Kyoto, Japan

Department of System Neuroscience, National Institutes for  
Physiological Sciences, Okazaki, Japan

Back in 1985 it was shown how the diffusive motion of molecules could be spatially encoded with MRI to produce images revealing the microstructure of biological tissues, a kind of virtual biopsy. The two seminal papers (1986 and 1988) are respectively the 1<sup>st</sup> and 2<sup>d</sup> most cited papers of all times (since 1923) in the leading journal *Radiology* for neuroradiology. Diffusion imaging has become a pillar of medical imaging with broad applications in both clinical and research settings, providing insights into tissue integrity and structural abnormalities. It allows to detect early changes in tissues that may not be visible with other imaging modalities. Diffusion imaging first revolutionized the management of acute cerebral ischemia by allowing diagnosis at an acute stage when therapies can still work, saving the outcomes of many patients. Diffusion imaging is particularly used to manage many neurological disorders and in oncology for detecting and classifying various kinds of cancers, as well as monitoring treatment response at an early stage. The second major impact of diffusion imaging concerns the wiring of the brain (Diffusion Tensor Imaging, 12,000 citations for the first two 1994 seminal articles), allowing to obtain non-invasively images in 3 dimensions of the brain connections. DTI has opened up new avenues of clinical diagnosis and research to investigate brain diseases, aging, mental health and neurological disorders.



現在、MRIを用いた臨床・研究に無くてはならない撮像法である拡散強調画像(DWI)を発明し、技術の基礎から臨床応用までを医学的かつ科学的に確立した先駆者であり、フランスの国家事業として11.7Tの超高磁場(世界最大)ヒト用MRIを稼働させたNeurospinの所長を務めるDenis Le Bihan教授が来潟され、拡散強調画像の40年の歴史とこれからの可能性について講義されます。MRIを用いて研究をしている、あるいは臨床でMRIを日常的に活用されている先生のみならず、MRIに興味のある方々に広くご参加を頂ければ幸いです。

統合脳機能研究センター 五十嵐 博中

どうぞ奮ってご参加ください。(担当：脳研究所 統合脳機能研究センター)



新潟大学脳研究所  
Brain Research Institute, Niigata University