Multi-Spherical Diffusion MRI: An in-vivo Test- Retest Study of Time-Dependent q-space Indices
Rutger Fick, Alexandra Petiet, Mathieu Santin, Anne-Charlotte Philippe, Stéphane Lehéricy, Rachid Deriche, Demian Wassermann

To cite this version:
Exhibition, Apr 2017, Honolulu, United States. hal-01468214

HAL Id: hal-01468214
https://hal.archives-ouvertes.fr/hal-01468214
Submitted on 23 Feb 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire HAL, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.
We studied the test-retest reproducibility of fitting error and \( q\)-index estimation in the corpus callosum of three mice. Through signal sparsity and smoothness, MS-dMRI can represent the \( q\)-signal using only 200 samples, allowing more realistic acquisition schemes.

The acquisition protocol can still be improved to avoid excessive acquisition noise like in Subject 3. Overall, we found that MS-dMRI can robustly and consistently estimate \( q\)-indices in in-vivo acquisitions, underlying its feasibility to estimate \( \tau\)-dependent features.

Acknowledgements: This work has received funding from the European Research Council (ERC) under the Horizon 2020 research and innovation program (ERC Advanced Grant agreement No 694665 : CoBCom) and from the ANR-13-MONU-0009 MOSIFAH project.

References