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## Quantitative analysis of human brain MR images at ultrahigh field strength

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### Citation

Doan, N. T. (2014, June 17). *Quantitative analysis of human brain MR images at ultrahigh field strength*. Retrieved from <https://hdl.handle.net/1887/26921>

Version: Corrected Publisher's Version

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**Issue Date:** 2014-06-17

## PROPOSITIONS

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1. Recent technological developments of clinical ultrahigh field MR scanners have made it possible to acquire data with increased image resolution and contrast-to-noise ratio, thereby allowing for in vivo studies of the laminar structure of the cerebral cortex (*this thesis*).
  2.  $T_2^*$ -weighted MRI is a multi-contrast imaging technique by itself (*this thesis*).
  3. Texture analysis techniques can be used to quantify local changes among image voxels such as focal or distributed alterations in 7T  $T_2^*$ -weighted magnitude and phase images (*this thesis*).
  4. Phase images of the elderly at ultrahigh field exhibit a more consistent gray-white matter contrast than the corresponding magnitude images, thus forming a valuable source of information for automated segmentation of the cerebral cortex (*this thesis*).
  5. Transforming the GRE phase information into quantitative susceptibility maps will become increasingly more attractive with increasing field strengths (J. Reichenbach, *NeuroImage* 2012, 62(2):1311–1315).
  6. The betterment of health should dictate priorities in health research (S.H. Woolf, *JAMA-J Am Med Assoc* 2008, 299(2):211–213).
  7. Understanding disease mechanisms is the first and inevitable step towards treatment and prevention.
  8. The Brain - is wider than the Sky (E. Dickinson, *The Complete Poems of Emily Dickinson*, 1976).
  9. Thất bại là “bà ngoại” của thành công. (Failure is the “grandmother” of success) (P.A. Bui, *1983-present*).
  10. Playing football is an excellent workout for one’s team spirit.
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Nhat Trung Doan, 2014