PERSONAL DATA

Name	VAN CAUTEREN MARC Ivo Julia
Function	Clinical Science Director Asia Pacific
	Philips Healthcare
	Business Innovation Unit Magnetic Resonance

STUDIES

Bachelor of Arts in Philosophy	July 1979	State University of Ghent, Belgium
Master in Physical sciences	July 1983	University of Brussels, Belgium
Doctor in Sciences (section Physics)	June 1992	University of Brussels, Belgium

COMPULSORY MILITARY SERVICE

Served as teacher of Physics at the Royal Military School, from 01.10.1983 till 31.07.1984

PROFESSIONAL CAREER

01.09.1984	Assistant to the faculty of medicine of the Limburg University Centre (Belgium)
01.01.1986	Assistant Professor at the Vrije Universiteit Brussel (Belgium)
01.03.1993	Postdoctoral Research collaborator at the Service Hospitalier Fréderic Joliot of the Centre d'Energie Atomique, France.
01.06.1993	NMR Application Scientist at Surrey Medical Imaging Systems, Guildford, UK.
01.06.1994	Regional Manager SMIS Japan, Kyoto, Japan
01.03.1996	MR Clinical Scientist, Philips Medical Systems Japan, Tokyo, Japan
01.01.1999	Manager MR Clinical Science, Philips Medical Systems Asia Pacific
01.04.2005	Director MR Clinical Science Asia Pacific, Philips Healthcare BU-MR

Marc Van Cauteren first obtained a BA in Philosophy and then moved to science to obtain a PhD in Physics. The start of his PhD work coincided with the arrival of the first clinical MR scanners in his university hospital, so he decided to do his PhD work in that exciting - and then very new – research area, although his Master's thesis was in Theoretical Physics (Plasma Physics). This resulted in a PhD thesis discussing the use of spectral editing techniques and adiabatic pulses in vivo. Especially the latter topic has now regained prominence in clinical imaging as adiabatic pulses can mitigate the effects of B_1 inhomogeneity as encountered at 3T and higher fields, particularly in the body. After obtaining his PhD he first continued his career in academia, working at universities and research institutions in his native Belgium and in France. He moved to industry working for a research systems company, working in the United Kingdom and Japan. He joined Philips Medical Systems in 1996 with the aim of setting up a MR clinical science operation, first in Japan and then in the whole of Asia Pacific. He currently holds the position of Director of Clinical Science in Philips HealthTech, located in Tokyo, and leads a team of well-trained dedicated professionals working in several countries in the Asia Pacific region. The main responsibilities of his team are to ensure the quality of the collaborative research projects in the region, to create new clinical applications rooted in the local clinical needs but with global relevance and to report on the specific needs of Asia Pacific radiologists and their patients, so that these get reflected in new product designs.As researcher his main contributions are in the co-development of clinical applications for SENSE and diffusion weighted based techniques in body imaging, especially the DWIBS technique. His research - also in other fields (e.g. in neuro, lung, cardiac and breast imaging) - resulted in numerous product improvements and now 86 well cited peer-reviewed publications. His most cited publication has more than 1600 citations, his seminal paper on DWIBS has more than to 1000 citations, with several other papers being cited more than 100 times. In his early research on spectroscopy he co-authored an early paper elucidating the splitting of the Pi peak during exercise. He is co-author on the first clinical paper on the application of SENSE parallel imaging. He also implemented the first clinically viable protocol for fibre tracking. With his team he developed the first real whole-heart coronary imaging technique. He co-developed the DWIBS technique, giving the oncologist a new tool to visualise tumours and metastases and to follow up on treatment. Currently he is mostly working on spin labelling techniques, using variations on the classical labelling sequences to show flow in arteries and veins badly visualised with standard techniques. Another focus is advanced imaging in brain and body, based on robust and fast MR imaging techniques including compressed SENSE and APT. A deeper understanding of diffusion remains a main interest, a recent paper discussed the extent of intact membrane as the main determinant of the ADC, at least in the cellular environment studied.

Representative articles (out of 86):

1.   " 31-P spectroscopy and the metabolic properties of different muscle fibers. ", E. Achten, *M. Van Cauteren*, R. Willem, R. Luypaert, W.J. Malaisse, G. Van Bosch, G. Delanghe, K. De Meirleir, M. Osteaux; **Journal of Applied Physiology**, <u>68</u>(2), 644-649 (1990)
2.   " Editing with a three-RF pulse sequence for NMR proton surface coil spectroscopy. ", *M. Van Cauteren*, F. Miot, H. Eisendrath, M. Osteaux, R. Willem; **Journal of Magnetic Resonance**, B <u>101</u>(3), 297 (1993)
3.   " Double-oblique free-breathing high resolution three-dimensional coronary magnetic resonance angiography. ", M. Stuber, R.M. Botnar, P.G. Dabnias, D.K. Sodickson, K.V. Kissinger, *M. Van Cauteren*, W.J. Manning; **Journal of the American College of Cardiology**, 34(2), 524-531 (1999)

4. " Diffusion Weighted Whole Body Imaging with Background Body Signal Suppression (DWIBS): Technical Improvement using Free Breathing, STIR and High Resolution 3D Display. ", T. Takahara, Y. Imai, T. Yamashita, S. Yasuda, S. Nasu, *M. Van Cauteren*; **Radiation Medicine**, 22(4), 275-282 (2004)

5. " Diffusion-weighted magnetic resonance imaging as a cancer biomarker: consensus and recommendations. ", A.R. Padhani, G. Liu, D.M. Koh, T.L. Chenevert, H.C. Thoeny, T. Takahara, A. Dzik-Jurasz, B.D. Ross, *M. Van Cauteren*, D. Collins, D.A. Hammoud, G.J. Rustin, B. Taouli, P.L. Choyke; **Neoplasia**, 11(2), 102-125 (2009)

6. " Salivary gland tumors: use of intravoxel incoherent motion MR imaging for assessment of diffusion and perfusion for the differentiation of benign from malignant tumors. ", M. Sumi, *M. Van Cauteren*, T. Sumi, M. Obara, Y. Ichikawa, T. Nakamura; **Radiology**, 263(3), 770-777 (2009)

7. " Asthma: comparison of dynamic oxygen-enhanced MR imaging and quantitative thin-section CT for evaluation of clinical treatment. ", Y. Ohno, M. Nishio, H. Koyama, S. Seki, T. Yoshikawa, S. Matsumoto, M. Obara, *M. Van Cauteren*, K. Sugimura; **Radiology**, 273(3), 907-16 (2014)

8. " Differentiation of high-grade and low-grade diffuse gliomas by intravoxel incoherent motion MR imaging. ", O. Togao, A. Hiwatashi, K. Yamashita, K. Kikuchi, M. Mizoguchi, K. Yoshimoto, S.O. Suzuki, T. Iwaki, M. Obara, *M. Van Cauteren*, H. Honda; **Neuro Oncology**, 18(1), 132-141 (2016)

9. " Length of intact plasma membrane determines the diffusion properties of cellular water. ", S. Eida, *M. Van Cauteren,* Y. Hotokezaka, I. Katayama, M. Sasaki, M. Obara, T. Okuaki, M. Sumi, T. Nakamura; **Scientific Reports @ Nature**, 6, 19051 (2016)

10. " Acceleration-selective arterial spin labeling for intracranial MR angiography with improved visualization of cortical arteries and suppression of cortical veins.", M. Obara, O. Togao, M. Yoneyama, T. Okuaki, S. Shibukawa, H. Honda, *M. Van Cauteren*; **Magnetic Resonance in Medicine**, 77(5), 1996-2004 (2017*)*

11. " Acceleration-Selective Arterial Spin Labeling MR Angiography to visualize Distal Cerebral Arteries and Collateral Vessels in Moyamoya Disease. ", O. Togao, A. Hiwatashi, M. Obara, K. Yamashita, K. Kikuchi, R. Kamei, A. Nishimura, K. Arimura, K. Yoshimoto, K. Iihara, *M. Van Cauteren*, H. Honda; **Radiology**, September 14 [Epub ahead of print]

12. " Acceleration of ASL-based time-resolved MR angiography by acquisition of control and labelled images in the same shot (ACTRESS). ", Y. Suzuki, N. Fujima, T. Ogino, J.A. Meakin, A. Suwa, H. Sugimori, *M. Van Cauteren*, M.J.P. van Osch; **Magnetic Resonance in Medicine**, 79(1), 224-233 (2018)

13. " Acceleration-Selective Arterial Spin Labeling MR Angiography to visualize Distal Cerebral Arteries and Collateral Vessels in Moyamoya Disease. ", O. Togao, A. Hiwatashi, M. Obara, K. Yamashita, K. Kikuchi, R. Kamei, A. Nishimura, K. Arimura, K. Yoshimoto, K. Iihara, *M. Van Cauteren*, H. Honda; **Radiology**, <u>77</u>(5), 1996-2004 (2018)

14. " Simultaneous acquisition of perfusion image and dynamic MR angiography using time-encoded pseudo-continuous ASL. ", Y. Suzuki, M. Helle, P. Koken, *M. Van Cauteren*, M.J.P. van Osch; **Magnetic Resonance in Medicine**, <u>79</u>(5), 2676-2684 (2018)

15. " Non-invasive electrical conductivity measurement by MRI: a test of its validity and the electrical conductivity characteristics of glioma. ", K. K. Tha, U. Katscher, S. Yamaguchi, C. Stehning, S. Terasaka, N. Fujima, K. Kudo, K. Kazumata, T. Yamamoto, *M. Van Cauteren*, H. Shirota; **European Radiology**, 28(1), 348-355 (2018)

16. " Measurement of the perfusion fraction in brain tumors with intravoxel incoherent motion MR imaging: validation with histopathologic vascular density in meningiomas. ", O. Togao, A. Hiwatashi, K. Yamashita, K. Kikuchi, D. Momosaka, K. Yoshimoto, D. Kuga, M. Mizoguchi, S.O. Suzuki, T. Iwaki, *M. Van Cauteren*, K. Iihara, H. Honda; **British Journal of radiology**, 91(1085), 20170912 (2018)

17. " Non-contrast enhanced 4D intracranial MR angiography based on pseudo-continuous arterial spin labeling with the keyhole and view-sharing technique. ", M. Obara, O. Togao, G.M. Beck, S. Shibukawa, T. Okuaki, M. Yoneyama, M. Nakamura, H. Honda, *M. Van Cauteren*; **Magnetic Resonance in Medicine**, 80(2),719-725 (2018)

18. " Acceleration-selective Arterial Spin-labeling MR Angiography Used to Visualize Distal Cerebral Arteries and Collateral Vessels in Moyamoya Disease. ", O. Togao, A. Hiwatashi, M. Obara, K. Yamashita, K. Kikuchi, R. Kamei, A. Nishimura, K. Arimura, K. Yoshimoto, K. Iihara, *M. Van Cauteren*, H. Honda; **Radiology**, 286(2), 611-621 (2018)