

Alain VLASSEN BROEK

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DOCTOR IN PHYSICAL SCIENCES

Dominant profile: Physics, electronics, mathematics, computer science, medical imaging...

University studies

performed at the « *Université Libre de Bruxelles* » (ULB).

→ **Master in Physics:** obtained 29 september 1988.

Final work: "Non-linear pulse spectroscopy: A simple example with irradiation at the Bohr frequency and at the Rabi frequency" .

Director: Prof. J. Jeener, Director of the Nuclear Magnetic Resonance Lab at ULB (CPI-232).

→ **Doctoral thesis:** obtained 07 june 1993.

Thesis: " Radiation damping in Nuclear Magnetic Resonance".

Complementary thesis: Variation of the electromagnetic field spectral distribution during decoupling with NMR radiofrequency pulse sequences in high resolution liquid NMR.

Director: Prof. J. Jeener, Director of the Nuclear Magnetic Resonance Lab at ULB (CPI-232).

Military Service 04/01/93 - 24/10/93.

Plasma Physics Laboratory – Royal Military School (ERM). Brussels.

Director: Prof. P. Vandenplas

→ Experiments performed in plasma physics on the TEXTOR Tokamak (Jülich-Germany).

→ Build computer software (IBM & Macintosh) for signal treatment after TEXTOR experiments.

Professional activities**Academic**

→ IRSIA Grant from 01/10/88 until 30/09/91.

→ ULB Researcher from 01/10/91 until 01/10/95:

ARC 91-96 convention (« Communauté française de Belgique »),

Laboratory of Prof. J. Jeener, Nuclear Magnetic Resonance (ULB/CPI-232).

→ ULB Physics Professor: propaedeutic courses (EPFC);

August /Sept. 1992 (40 hours), August /Sept. 1994 (40 hours)

Industrial

- Esclint/Picker/Marconi BeNeLux organization: MRI and CT application scientist from 01/10/95 until 01/12/2001.
- Clinical Scientist: member of the CT Clinical Science and Applications Group of Philips Healthcare since 01/12/2001.

Main Fields of Expertise: Dosimetry, Cardiac&Chest imaging, CT angiography and Spectral CT.
Manager: S. Shenhav, Director of CT Clinical Science and Applications.

Personal Informations

- Nationality: Belgian.
- Place of birth and birthday : Brussels, 21 november 1963 (53).
- Family situation : Married, 2 children/ Antoine (21) and Robin (18)
- Languages : French: mother language
English: fluent, Spanish: fluent, Dutch: good
- Hobbies: Computer science, astronomy, photography, boating, diving ...

Publications

- Vlassenbroek, J. Jeener, and P. Broekaert, Radiation damping in high resolution liquid NMR: A simulation study, *J. Chem. Phys.* **103**, 5886–5897 (1995) .
- J. Jeener, A. Vlassenbroek, and P. Broekaert, Unified derivation of the dipolar field and relaxation terms in the Bloch–Redfield equations of liquid NMR, *J. Chem. Phys.* **103**, 1309–1332 (1995) .
- Vlassenbroek, J. Jeener, and P. Broekaert, Macroscopic and microscopic fields in high-resolution liquid NMR, *J. Magn. Reson. A* **118**, 234–246 (1996) .
- P. Broekaert, A. Vlassenbroek, J. Jeener, G. Lippens, and J.-M. Wieruszkeski, Observation and selective suppression of the dipolar-field effects in 2D NMR in liquids in homogeneous fields, *J. Magn. Reson. A* **120**, 97–104 (1996) .
- Coche E, Vlassenbroek A, Roelants V, D'Hoore W, Verschuren F, Goncette L, Maldague B., Evaluation of biventricular ejection fraction with ECG-gated 16-slice CT: preliminary findings in acute pulmonary embolism in comparison with radionuclide ventriculography. *Eur Radiol.* 2005 Jul;15(7):1432-40.
- Van der Schaaf I, van Leeuwen M, Vlassenbroek A, Velthuis B., Minimizing clip artifacts in multi CT angiography of clipped patients. *AJNR Am J Neuroradiol.* 2006 Jan;27(1):60-6.
- Hernalsteen D, Cosnard G, Robert A, Grandin C, Vlassenbroek A, Duprez T., Suitability of helical multislice acquisition technique for routine unenhanced brain CT: an image quality study using a 16-row detector configuration. *Eur Radiol.* 2007 Apr;17(4):975-82.
- Coche E, Vlassenbroek A, Quantification automatique de la fonction ventriculaire par detection automatique des contours. *Journal de Radiologie* Volume 8, Issue 10, October 2007, Page 1393
- Nguyen PT, Coche E, Goffin E, Beguin C, Vlassenbroek A, Devuyt O, Robert A, Jadoul M., Prevalence and determinants of coronary and aortic calcifications assessed by chest CT in renal transplant recipients. *Am J Nephrol.* 2007;27(4):329-35.
- Coche E, Walker MJ, Zech F, de Crombrughe R, Vlassenbroek A., Quantitative right and left ventricular functional analysis during gated whole-chest MDCT: a feasibility study comparing automatic segmentation to semi-manual contouring. *Eur J Radiol.* 2010 Jun;74(3):e138-43.
- Mueller DK, Kutscherenko A, Bartel H, Vlassenbroek A, Ourednicek P, Erckenbrecht J., Phantom-less QCT BMD system as screening tool for osteoporosis without additional radiation. *Eur J Radiol.* 2011 Sep;79(3):375-81.
- Noël PB, Bendik E, Münzel D, Schneider A, Goshen L, Gringauz A, Lamash Y, Vlassenbroek A, Fingerle AA, Rummeny EJ, Dobritz M., A method for improving iodine contrast enhancement in abdominal computed tomography: experimental study in a pig model. *Eur Radiol.* 2012 Oct 19.
- Deprez FC, Vlassenbroek A, Ghaye B, Raaijmakers R, Coche E, Controversies about the effects of low-kilovoltage MDCT acquisition on Agatston calcium scoring, *Journal of Cardiovascular Computed Tomography* (2012) 1-4.
- Bendik E, Noël P, Muenzel D, Fingerle A, Henninger M, Markus C, Vlassenbroek A, Rummeny E, Dobritz M, Evaluation of a method for improving the detection of hepatocellular carcinoma. *Eur Radiol.* 2014 Jan;24(1):250-5.
- Millon D, Vlassenbroek A, Van Maanen A, Cambier S, Coche E, Low contrast detectability and spatial resolution with model-based iterative reconstructions of MDCT images: a phantom and cadaveric study. *Eur Radiol* 2016 Jun 14

- Wellenberg R, Boomsma M, van Osch J, Vlassenbroek A, Milles J, Edens M, Streekstra G, Slump C, Maas M, Computed Tomography Imaging of a Hip Prosthesis Using Iterative Model-Based Reconstruction and Orthopaedic Metal Artefact Reduction: A Quantitative Analysis. *J. Comput Assist Tomogr.* 2016 Nov/Dec;40(6):971-978.
- Muenzel D, Fingerle A, Zahel T, Sauter A, Vlassenbroek A, Dobritz M, Rummeny E, Noël P, CT Angiography, *Academic Radiology* Feb 2017, Volume 24, Issue 2, pages 131-136
- Wellenberg R, Boomsma M, van Osch J, Vlassenbroek A, Milles J, Edens M, Streekstra G, Slump C, Maas M, Quantifying metal artefact reduction using virtual monochromatic dual-layer detector spectral CT imaging in unilateral and bilateral total hip prostheses, *Eur J Radiol.* Volume 88, March 2017, pages 61–70

Book Chapters

- "The Use of Isotropic Imaging and Computed Tomography Reconstructions", Alain Vlassenbroek, in "**Comparative Interpretation of CT and Standard Radiography of the Chest**", *Medical Radiology* 2011, pp 53-73, Springer.
- "Dual Layer CT", Alain Vlassenbroek, in "**Dual Energy CT in Clinical Practice**", *Medical Radiology* 2011, pp 21-34, Springer.
- "CT Radiation Dose: Philips Perspective", Alain Vlassenbroek, Dhruv Mehta, Jeffrey Yanof in "**CT Radiation Dose from Multidetector CT**", *Medical Radiology* 2012, pp 617-632, Springer.
- "Innovations in Cardiac Multi-Slice Computed Tomography", Alain Vlassenbroek, Mani Vembar, Michael Grass in "**Coronary Artery CTA, 2nd Edition**", in press, to be published during Q2 2017, Springer.