Magnetic Resonance Force Microscopy and the spin bath : towards single-spin massive-resonator entanglement and the spoiling influence of the spin bath

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During my PhD I was a member of the very last central works council (COR) of FOM and I would like to thank all other representatives for the intensive and great years we had together.

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Curriculum Vitae

Jacobus Marinus de Voogd (Marc) was born on January 29^{th} 1989 in Vlissingen and grew up in Grijpskerke, The Netherlands. After he graduated from VWO at Calvijn College Goes in 2007, he went to Leiden to study physics. He obtained his BSc degree after research on the change of the transfer function of MRI receiver coils due to the different salinities of human heads. The research was conducted at the 7T MRI scanner at the Gorter Center for High Field MRI at the LUMC under supervision of Prof. dr. A. G. Webb and Prof. dr. ir. T. H. Oosterkamp.

Following this, he studied theoretical physics and did his MSc research under supervision of Prof. dr. K. E. Schalm and Dr. D. Garlaschelli. The subject of his MSc thesis was the configuration relaxation of space, which consisted of two parts: resonant tunneling in scalar field theory, and the freezing of bubbly space. In 2012 he obtained his MSc in Physics cum laude.

He went on to pursue a PhD under supervision of Prof. dr. ir. T. H. Oosterkamp in which he did technical, experimental, and theoretical work on Magnetic Resonance Force Microscopy (MRFM). With his work he tried to pave the way for experiments that eventually might be able to detect gravitational induced decoherence. Also, he explained the change of the transfer function when the MRFM tip approaches the sample and interacts with the spin bath. This work is described in this thesis.

During the last two years of his PhD, he was vice secretary of the (last) Central Works Council (COR) at FOM, the Dutch Foundation for Fundamental Research on Matter during a fusion and reorganization with the parent organization NWO, the

Netherlands Organisation for Scientific Research.

As of May 2017, Marc is working part-time at LPM BV, a company that creates custom scientific setups in the field of scanning probe microscopy and research catalysis reactors. Besides this, he started a company De Voogd Scientific that consults on scientific setups in the field of scanning probe microscopy and quantum computing. In the future he plans to sell modular scientific electronics under the name Godfather Instrumentation.

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