# CURRICULUM VITAE

Elise H. J. de Doncker Department of Computer Science

Professor, Computer Science Western Michigan University

Kalamazoo, MI 49008

Doctor in Mathematical Sciences

Katholieke Universiteit Leuven, Belgium (1981)

[elise.dedoncker@wmich.edu](mailto:elise.dedoncker@wmich.edu)

[http://www.cs.wmich.edu/elise](http://www.cs.wmich.edu/~elise)

**Professional Experience**

1982 – present Associate - Full Professor, Western Michigan University

1989 – 1990 Sabbatical leave, CalTech

1981 – 1982 Visiting Professor, Delft University of Technology, the Netherlands

1974 – 1981 Scientific Assistant, Katholieke Universiteit Leuven, Belgium

**Awards**

CEAS Outstanding Researcher Award 2006, Western Michigan University

Distinguished Faculty Scholar Award 2003, Western Michigan University

IBM Prize for Informatics,Belgium 1981

**Research Interests**

Parallel algorithms and large-scale computation; scientific algorithms and computations; design and analysis of algorithms; numerical analysis, particularly numerical integration; computational mathematics, physics, finance; quantum physics/computing; medical informatics; *natural* computation technologies (including genetic/evolutionary algorithms, neural networks); theory of computation

**Grants**

* NSF CMMI – SERVICE ENTERPRISE SYSTEMS: SAMPLING CRITERIA FOR MONITORING INFLUENZA EMERGENCIES UNDER CONSTRAINED TESTING CAPABILITIES, D. Prieto (PI), E. de Doncker, R. Paul, Sept. 1 2015 – Aug. 31 2018 ($199,646)
* NSF REU Supplement to NSF CMMI: SAMPLING CRITERIA FOR MONITORING INFLUENZA EMERGENCIES UNDER CONSTRAINED TESTING CAPABILITIES, D. Prieto (PI), E. de Doncker, R. Paul, 2016 ($5,000)
* NVIDIA CUDA Teaching Center (CTC), E. de Doncker and J. Kapenga (May 2012)
* NSF MRI: ACQUISITION OF A HIGH PERFORMANCE CLUSTER FOR MULTIDISCIPLINARY COMPUTATIONAL RESEARCH, E. de Doncker (PI), P. Gustafson, K. Kaugars, W. Liou, Y. Mo, Selected by WMU (Nov. 2010), Granted by the National Science Foundation (Sept. 2011), Oct. 2011-2016 (total $413,676)
* BOEING grant, with K. Kaugars, 2006 ($19,000)
* WMU Internet 2 Funding: Nano@I2, with Paul D. Fleming, K. Kaugars, John B. Miller and Dewey Qi, 2003 ($30,000)
* NSF Award ACI-0203776: DISTRIBUTED MULTIVARIATE INTEGRATION IN A PROBLEM SOLVING ENVIRONMENT, E. de Doncker (PI), K. Kaugars, A. Gupta and A. Genz, 2002-2005 ($348,495)
* WMU Internet 2 Funding: Globally Accessible Integration Services over Internet 2, E. de Doncker and K. Kaugars, 2002 ($30,000)
* NSF Award EIA-0130857: INFORMATION VISUALIZATION AND INCREMENTAL KNOWLEDGE DISCOVERY IN A CLUSTER COMPUTING ENVIRONMENT, E. de Doncker, K. Kaugars, L. Yang and M. Mohania, 2001-2003 ($292,870)
* WMU Summer grant preparation support, E. de Doncker and K. Kaugars, 2001 ($7,000)
* WMU CEAS JUMPSTART FUNDING: ENHANCING THE WMU-CS CLUSTER, E. de Doncker, K. Kaugars and A. Gupta, 2001 ($50,000)
* NSF Award ACR-0000442: DISTRIBUTED NUMERICAL INTEGRATION ALGORITHMS AND APPLICATIONS, E. de Doncker (PI), A. Gupta and A. Genz, 2000-2002 ($316,343)
* NSF Award CDA-9022562: PARALLEL AND DISTRIBUTED INTEGRATION ALGORITHMS, E. de Doncker (PI), A. Gupta and A. Genz (subcontract), 1994 ($146,631 of which $21,475 cost share)
* NSF: CISE Research Instrumentation grant, E. de Doncker (PI), J. Kapenga, D. Ferraro, J. & D. Nelson, ($380,350 of which $190,175 cost share)
* nCUBE: University grant for algorithm and software development (with J. Kapenga) ($493,585)
* UPJOHN: SET OF UNIX NEURAL NETWORK UTILITIES (with J. Kapenga and R. Trenary) ($16,000)
* PROFESSIONAL MEDICAL MANAGEMENT, Inc.: BASIC TO C TRANSLATOR (with J. Kapenga and B. Pinkowski) ($12,000)
* STW (``Foundation for Technical Sciences") in the Netherlands: Research grant (one year) at the Delft University of Technology, the Netherlands (with J. Kapenga), 1985-1986 ($120,000)
* University of New South Wales, School of Mathematics, Kensington, Australia: an Honorary Fellowship, 1984
* SLATEC, through the Lawrence Livermore National Laboratory: funding for port of Quadpack to SLATEC library, 1981 ($15,000)
* IBM: the IBM Prize for Informatics, 1981 (Belgium)
* Stanford University: Summer grant, 1981
* Argonne National Laboratory: Research participation, 1979

**Professional Activities and Professional Development**

**Synergistic Activities**

**Co-director, Center for High Performance Computing and Big Data (HPCBD**) (with J. Kapenga and F. Saeed)

**Co-director, NVIDIA CUDA Teaching Center WMU** (since April 2012, with J. Kapenga)

**Co-director, High Performance Computational Science (HPCS) Laboratory**(with J. Kapenga)

**Professional Partnership application, equipment donation from NVIDIA** (January 2012)

**Guest Editor, Journal of Computational Science**, JoCS Special Issue, **Scientific Computations, Methods and Applications**(2010-2012)

**Conference/workshop organization**

* Workshop Chair: Large Scale Computational Physics (LSCP 2016), ICCS 2016 (International Conference on Computational Science), San Diego, CA (with F. Yuasa)
* Workshop Chair: Large Scale Computational Physics (LSCP 2015), ICCS 2015 (International Conference on Computational Science), Reykjavic, Iceland (with F. Yuasa)
* Workshop Chair: Large Scale Computational Physics (LSCP 2014), ICCS 2014 (International Conference on Computational Science), Cairns, Australia (with F. Yuasa)
* Workshop Chair: Large Scale Computational Physics (LSCP 2013***)****,* ICCS 2013 (International Conference on Computational Science), Barcelona, Spain (with F. Yuasa)
* Workshop Chair: Large Scale Computational Physics (LSCP 2012), ICCS 2012 (International Conference on Computational Science), Univ. of Nebraska, Omaha (with F. Yuasa)
* Session Chair: Computational Science, International Conference on Computational and Applied Mathematics (ICIAM 2011), Vancouver, Canada
* Workshop Chair: Large Scale Computational Physics (LSCP 2011), ICCS 2011 (International Conference on Computational Science), Singapore (with F. Yuasa)
* Session Chair: Loop Integrals, CPP 2010 (Computational Particle Physics), High Energy Accelerator Research Organization (KEK), Tsukuba, Japan
* Workshop Chair: Numerical Methods and Modeling/Simulations in Computational Science and Engineering (NNMS 2010),ICCSA 2010, Kyushu Sangyo University, Fukuoka, Japan
* Workshop Chair: Numerical Integration and Applications (NIA 2006),ICCSA 2006 (International Conference on Computational Science and Applications), Glasgow, Scotland
* Conference: Computing in the 90s – First Great Lakes Computer Science Conference (Proceedings editor)

**Software distributions**

**Quadpack,** R. Piessens, E. de Doncker, C. W. Überhuber, D. K. Kahaner, QUADPACK – A Subroutine Package for Automatic Integration, Springer Series in Comp. Math. **1,** 1983. **ParInt,** E. de Doncker, K. Kaugars, A. Gupta, A. Genz., R. Zanny (Copyright ParInt 1.0, 1999)

**Scientific, professional, honor societies and memberships.** Association for Computing Machinery (ACM),

Numerical Algorithms Library (NAG), Upsilon Pi Epsilon (UPE), Amnesty International, American Association of Pilots and Aircraft Owners (AOPA), Air Safety Foundation (ASF), Humane Society (HSUS), ASPCA

**Designated Committees**

Academic Program Review and Planning (APR&P) Observation Committee (2014-2015)

WMU CEAS Medical Engineering group

WMU Presidential Commission on Gender Equity (2010-2011)

**Reviewer for journal and conference publications**

Incl. ACM Transactions on Mathematical Software (TOMS); J. Mathematics of Computation; Int. Conf. Comp. Sc. (ICCS); Int. Conf. Comp. Sc. & Applics. (ICCSA)

**Mentor** (KAMSCI), incl. two mentees who received awards for their projects (incl. Ben Mehne, did a project on “An Equation Based Method for storing Image Data”, March 2010)

**Developer:NAG** (Numerical Algorithms Library)

**Consulting/Maintaining:** Quadpack, ParInt software (ongoing)

**Registered as developer**(Apple, Intel, PGI)

**Books, Book Chapters**

* Monte Carlo Automatic Integration with Dynamic Parallelism in CUDA”, E. de Doncker, J. Kapenga and R. Assaf, Book chapter in “Numerical Computations with GPUs”, Ed. V. Kindratenko, Pub. Springer (2014), ISBN 978-3-319-06547-2 (Print), 978-3-319-06548-9 (Online), pp. 273-298
* Scientific Computation Methods and Applications, Ed. (with K. Kaugars), Journal of Computational Science (JoCS), [Volume 3 (2012)](http://www.sciencedirect.com/science/journal/18777503/3)
* Toward Automatic Regularization for Feynman Loop Integrals in Perturbative Quantum Field Theory. In Measurements in Quantum Mechanics, Ed. M. R. Pahlavani, 2012, ISBN 978-953-51-0058-4.
* Computing in the 90s*,* Eds. N. A. Sherwani, E. de Doncker and J. A. Kapenga, Springer Lecture Notes in Computer Science **507**, 1991, ISBN 3-540-97628-0, 0-387-97628-0
* QUADPACK *–* A Subroutine Package for Automatic Integration*,* Springer Series in Comp. Math. **1,** 1983.

**2011-2016 Presentations**

* Automatic Numerical Integration and Extrapolation for Feynman Loop Integrals,” E de Doncker (presenter), F Yuasa, K Kato, T. Ishikawa, Invited talk at the Comp. Particle Physics Workshop (CPP’16), Hayama, Japan (Oct. 2016), <http://minami-home.kek.jp/cpp2016/slides/cpp2016-deDoncker.pdf>
* Adaptive Hybrid Multi-threaded Simulation of Agent-Based Pandemic Modeling using Multiple GPUs, B. Shekh (presenter), E. de Doncker and D. Prieto, IEEE International Conf. on Bioinformatics & Biomedicine (BIBM'15) - Workshop on High Performance Computing for Big Data (Nov. 2015), <http://cci.drexel.edu/ieeebibm/bibm2015/index.html>
* Adaptive Integration for 3-loop Feynman Diagrams with Massless Propagators,” E. de Doncker (presenter), F. Yuasa, K. Kato, T. Ishikawa and O. Olagbemi, International Conference on Computational Science (ICCS’15), Reykjavik, Iceland (June 2015), [http://meeting.org/iccs2015/wp-content/scheduleSite\_2015/pages/LSCP.html#abstract734](http://iccs-meeting.org/iccs2015/wp-content/scheduleSite_2015/pages/LSCP.html#abstract734)
* Workshop on Large Scale Computational Physics – LSCP, E. de Doncker (presenter) and F. Yuasa, International Conference on Computational Science (ICCS’15), Reykjavik, Iceland (June 2015),

<http://iccs-meeting.org/iccs2015/wp-content/scheduleSite_2015/pages/LSCP.html#abstract757>

* Automatic Numerical Methods for Feynman Integrals through 3-loop. E. de Doncker (presenter), F. Yuasa, K. Kato, T. Ishikawa, O. Olagbemi. 16th Workshop on Advanced Computing and Analysis Techniques in Physics (ACAT 2014), Sept. 1-5, 2014, Prague, Czech Republic, <https://indico.cern.ch/event/258092/session/9/contribution/78>, <http://iopscience.iop.org/1742-6596/608/1>
* Scalable Software for Multivariate Integration on Hybrid Platforms. E. de Doncker (presenter), J. Kapenga, F. Yuasa and O. Olagbemi. XXVI IUPAP Conf. on Comp. Physics (CCP 2014), August 11-14, 2014, Boston
* Parallel Paradigms for Experimental Mathematics, E. de Doncker (presenter). Invited talk at the Institute for Computational and Experimental Research in Mathematics (ICERM), Brown University, July 2014
* Open Source Software for Monte Carlo/DSMC Applications. E. de Doncker (presenter), J. Kapenga, W. Liou, 55th AIAA/ASMe/ASCE/AHS/SC Structures, Structural Dynamics, and Materials Conference. January 13 - 17,

2014, National Harbor MD

* [Acceleration of loop diagram computations](https://cs.wmich.edu/%7Ehpcs/events/kek13talk.pdf). E. de Doncker. Invited talk at the High Energy Research Organization (KEK), July 2013, Tsukuba, Japan
* Multivariate Integration Algorithms and Applications on GPUs. E. de Doncker and R. Assaf. IV Intl. Congress Comp. Engineering and Sciences (FEMTEC), May 19-24, 2013, Las Vegas NV
* [Parallel Agent-based Simulation of Pandemic and Seasonal Influenza Outbreaks](https://cs.wmich.edu/%7Ehpcs/events/Parallel-Agent-Based-rev.pptx). M. Soto-Ferrari, P. Holvenstot, D. Prieto, E. de Doncker (presenter) and J. Kapenga, at the 13th International Conference on Computational Science (ICCS 2013)**,** June 3-7, 2013, Barcelona, Spain
* [GPU Integral Computations in Stochastic Geometry](https://cs.wmich.edu/%7Ehpcs/events/mctalk.pdf). E. de Doncker (presenter) and R. Assaf. VII Workshop Comp. Geometry and Applics. (CGA)/ XIII ICCSA, June 2013, Ho Chi Minh City
* Feynman Loop Integral Computation on Hybrid Platforms. E. de Doncker, Y. Yuasa (presenter) and R. Assaf, at the 15th International Workshop on Advanced Computing and Analysis Techniques in Physics (ACAT 2013), Beijing, China.
* Adaptive Control in Multi-threaded Integration.E. de Doncker (presenter) and Y. Yuasa. International Conference on Mathematical Modeling in Physical Sciences, September 3-7, 2012, Budapest, Hungary.
* Shared Memory Iterated Integration for Feynman Integrals.E. de Doncker (presenter) and F. Yuasa. XXIV IUPAP Conference on Computational Physics (CCP 2012), June 4-6, 2012, Kobe, Japan
* Multi-core Iterated Adaptive Integration.E. de Doncker, School of Information and Communication Engineering, Beijing University of Posts and Telecommunications, March 26, 2012, Beijing, P.R.C.
* Numerical Integration for Ab Initio Methods in Quantum Chemistry. E. de Doncker, BIT’s 4th Annual World Congress of BioSoft, March 23-25, 2012, Beijing.
* Parallel Computation of Feynman Loop Integrals. E. de Doncker (presenter) and F. Yuasa*.* Conference on Computational Physics (CCP 2011), Oct. 30-Nov. 3, Oakridge National Laboratory (ORNL), Gatlinburg TN
* The GRACE Project – QCD, SUSY, Multi-loop. J. Fujimoto (presenter). N. Hamaguchi, T. Ishikawa, T. Kaneko, Y. Kurihara, S. Odaka, Y. Shimizu, F. Yuasa, T. Inoue, T. Koike, T. Kon, M. Jimbo, K. Kato, M. Kuroda, E. de Doncker. 10th International Symposium on Radiative Corrections (RADCOR 2011), September 26-30, Mamallapuram, India
* Numerical Approach to Multi-loop Integrals. K. Kato (presenter), E. de Doncker, N. Hamaguchi, T. Ishikawa, T. Koike, Y. Kurihara, Y. Shimizu, F. Yuasa. The XXth International Workshop on High Energy Physics and Quantum Field Theory (QFTHEP 2011), September 24-October 1, Sochi, Russia
* Regularization of IR-divergent loop integrals. E. de Doncker (presenter), Y. Yuasa and Y. Kurihara, **14th International Workshop on Advanced Computing and Analysis Techniques in Physics Research** (ACAT 2011), September 5-9, Brunel University, **Uxbridge, London, UK**
* Progress on the Direct Computation Method. F. Yuasa (presenter), T. Ishikawa, N. Hamaguchi, Y. Shimizu , E. de Doncker, K. Kato. **14th International Workshop on Advanced Computing and Analysis Techniques in Physics Research** (ACAT 2011), September 5-9, Brunel University, **Uxbridge, London, UK**
* Parallel Iterated Multivariate Integration. E. de Doncker. International Conference on Computational and Applied Mathematics (ICIAM 2011), July 18-22, Vancouver, Canada
* Numerical Methods for Infrared Divergent One-Loop Diagrams. E. de Doncker (presenter), Y. Kurihara, F. Yuasa. International Conference on Computational Science (ICCS 2011), June 1-3, Nanyang Technological University, Singapore
* Computation of Two-loop Integrals with Masses by Numerical Integration and Extrapolation. Y. Yuasa (presenter), T. Ishikawa, N. Hamaguchi, Y. Shimizu, E. de Doncker, K. Kato. LoopFest X, May 12-14, Northwestern University, Il.

**Selected Publications: see below for publications since 2000**

**– for older publications see** <http://www.cs.wmich.edu/elise/vita/node1.html>

* Adaptive Integration and Singular Boundary Transformations, E de Doncker, F Yuasa, T Ishikawa, J Kapenga, O Olagbemi, Procedia Computer Science, Vol. 80 (2016), 1428-1438, <http://dx.doi.org/10.1016/j.procs.2016.05.462>
* Workshop on Large Scale Computational Physics LSCP 2016, O Olagbemi, E de Doncker, F Yuasa, Procedia Computer Science 80 (2016), 1416-1417
* High Performance and Increased Precision Techniques for Feynman Loop Integrals, K. Kato, E. de Doncker, T. Ishikawa, J. Kapenga, O. Olagbemi and F. Yuasa, Journal of Physics: Conf. Ser. (JPCS), IOP Series, To appear
* Task Partitioning for Bayesian Applications, E. de Doncker and A. Almulihi, Submitted (2016)
* Hybrid Multi-threaded Simulation of Agent-Based Pandemic Modeling using Multiple GPUs, B. Shekh, E. de Doncker and D. Prieto, IEEE International Conf. on Bioinformatics & Biomedicine (BIBM'15), 1478-1485, IEEE Xplore DOI: [10.1109/BIBM.2015.7359894](http://dx.doi.org/10.1109/BIBM.2015.7359894)
* Monte Carlo Simulations on Intel Xeon Phi: Offload and Native Mode, B. Shareef, E. de Doncker and J. Kapenga, 2015 IEEE High Performance Extreme Computing (HPEC’15), IEEE Xplore **DOI:** [10.1109/HPEC.2015.7322456](http://dx.doi.org/10.1109/HPEC.2015.7322456)
* Adaptive Integration for 3-loop Feynman Diagrams with Massless Propagators, E. de Doncker, F. Yuasa, K. Kato, T. Ishikawa and O. Olagbemi, Procedia Computer Science **51** (2015), pp. 1333-1342,

<http://www.sciencedirect.com/science/article/pii/S1877050915011266>, [doi:10.1016/j.procs.2015.05.318](http://dx.doi.org/10.1016/j.procs.2015.05.318)

* Workshop on Large Scale Computational Physics – LSCP, E. de Doncker and F. Yuasa, Procedia Computer Science **51** (2015), pp. 1269-1271, <http://www.sciencedirect.com/science/article/pii/S1877050915011266>, [doi:10.1016/j.procs.2015.05.318](http://dx.doi.org/10.1016/j.procs.2015.05.318)
* Scalable Software for Multivariate Integration on Hybrid Platforms. E. de Doncker, J. Kapenga, F. Yuasa and O. Olagbemi. Journal of Physics: Conf. Ser. (JPCS), IOP Series **640** (2015), 012062, [doi:10.1088/1742-6596/640/1/012062](http://dx.doi.org/10.1088/1742-6596/640/1/012062)
* Automatic Numerical Methods for Feynman Integrals through 3-loop. E. de Doncker, F. Yuasa, K. Kato, T. Ishikawa, O. Olagbemi. Journal of Physics: Conf. Ser. (JPCS), IOP Series 608 (2015),

<http://iopscience.iop.org/article/10.1088/1742-6596/608/1/012071/meta>

* GPGPU Parallelization of Self-Calibrating Agent-Based Influenza Outbreak Simulation. P. Holvenstot, D. Prieto and E. de Doncker, IEEE EXplore Proc., Waltham Massachussets (2014), [www.ieee-hpec.org/CD/index\_htm\_files/FinalPapers/124.pdf](http://www.ieee-hpec.org/CD/index_htm_files/FinalPapers/124.pdf)
* Open Source Software for Monte Carlo/DSMC Applications. E. de Doncker (presenter), J. Kapenga, W. Liou, 55th AIAA/ASMe/ASCE/AHS/SC Structures, Structural Dynamics, and Materials (SciTech), doi:0.2514/6.2014-0348, <http://arc.aiaa.org/doi/book/10.2514/msdm14>
* GPU Integral Computations in Stochastic Geometry. E. de Doncker and R. Assaf. Lecture Notes in Computer Science **7973,** Theoretical Computer Science and General Issues, Eds. **Murgante,** B., **Misra,** S., **Carlini,** M**., Torre,** C**., Nguyen**, H.-Q., **Taniar**, D**., Apduhan**, B.O**., Gervasi**, O., Pub. Springer (2014), ISBN 978-3-642-39646-5 (eBook), ISBN: 978-3-642-39642-7 (Print), [doi:10.1007/978-3-642-39643-4\_10](http://link.springer.com/chapter/10.1007%2F978-3-642-39643-4_10)
* Multi-threaded Adaptive Extrapolation Procedure for Feynman Loop Integrals in the Physical Region. E. de Doncker, F. Yuasa and R. Assaf. Journal of Physics: Conf. Ser. **454** (Aug. 2013), 012082, [doi:10.1088/1742-6596/454/1/012082](http://dx.doi.org/10.1088/1742-6596/454/1/012082)
* [Parallel Programming Approaches for an Agent-Based Simulation of Concurrent Pandemic and Seasonal Influenza Outbreaks](http://www.sciencedirect.com/science/article/pii/S1877050913005322). M. Soto-Ferrari, P. Holvenstot, D. Prieto, E. de Doncker, J. A. Kapenga. Procedia Computer Science 18 (2013), 2187-2192
* Adaptive Control in Multi-threaded Iterated Integration. E. de Doncker and F. Yuasa. Journal of Physics: Conf. Ser. **410** (Feb. 2013), 012047, [doi:10.1088/1742-6596/410/1/012047](http://dx.doi.org/doi:10.1088/1742-6596/410/1/012047)
* Parallel Computation of Feynman Loop Integrals. E. de Doncker and F. Yuasa. *Journal of Physics: Conf. Ser.* **402** (Dec. 2012), 012029, [doi:10.1088/1742-6596/402/1/012029](http://dx.doi.org/doi:10.1088/1742-6596/402/1/012029)
* [Advances in Computational Methods: A Compilation](http://www.sciencedirect.com/science/article/pii/S1877750312000294)***.***E. de Doncker, Journal of Computational Science (JoCS) 3 (3), 75-76, 2012
* Quadpack Computation of Feynman Loop Integrals. E. de Doncker, J. Fujimoto, N. Hamaguchi, T. Ishikawa, Y. Kurihara, Y. Shimizu, F. Yuasa, Journal of Computational Science (JoCS) 3 (3), (2012), 102-112, [doi:10.1016/j.jocs.2011.06.003](http://dx.doi.org/10.1016/j.jocs.2011.06.003) , <http://www.sciencedirect.com/science/article/pii/S1877750311000573>
* Regularization of IR-divergent loop integrals. E. de Doncker, Y. Yuasa and Y. Kurihara, Journal of Physics: Conference Series, 2012, <http://iopscience.iop.org/1742-6596/368/1>
* Numerical Computation of Two-loop Box Diagrams with Masses. Y. Yuasa, E. de Doncker, N. Hamaguchi, T. Ishikawa, K. Kato, Y. Kurihara, Y. Shimizu, J. Computer Physics Communications **183** (2012), 2136-2144. See also archive version, <http://arxiv.org/abs/1112.0637>
* Parallel Computation of Feynman Loop Integrals. E. de Doncker and F. Yuasa, The Journal of Physics: Conference Series, Proc. CCP 2011 (2012).
* The GRACE Project – QCD, SUSY, Multi-loop. J. Fujimoto (presenter), N. Hamaguchi, T. Ishikawa, T. Kaneko, Y. Kurihara, S. Odaka, Y. Shimizu, F. Yuasa, T. Inoue, T. Koike, T. Kon, M. Jimbo, K. Kato, M. Kuroda, Proceedings of Science PoS(RADCOR2011)012 <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=145> (2011).
* Numerical Approach to Multi-loop Integrals. K. Kato, E. de Doncker, N. Hamaguchi, T. Ishikawa, T. Koike, Y. Kurihara, Y. Shimizu, F. Yuasa, Proceedings of Science PoS (QFTHEP2011)029,

<http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=138> (2011).

* Extrapolation Algorithms for Infrared Divergent Integrals. E. de Doncker, J. Fujimoto, N. Hamaguchi, T. Ishikawa, Y. Kurihara, M. Ljucovic, Y. Shimizu, F. Yuasa, Proceedings of Science PoS (CPP2010)011, <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=131>*;* Cornell University Library, [arXiv:1110.3587v1](http://arxiv.org/abs/1110.3587v1) [hep-ph].
* Numerical Approach to the Calculation of Feynman Loop Integrals.F. Yuasa, T. Ishikawa, Y. Kurihara, J. Fujimoto, Y. Shimizu, N. Hamaguchi, E. de Doncker, K. Kato, Proceedings of Science PoS (CPP2010)017, <http://pos.sissa.it/cgi-bin/reader/conf.cgi?confid=131> (2011); Cornell University Library, [arXiv:1109.4213v1](http://arxiv.org/abs/1109.4213v1) [hep-ph].
* Dimensional Recursion for Multivariate Adaptive Integration.E. de Doncker, K. Kaugars, *Procedia Computer Science* 1 (2010), 117-124.
* Transformation, Reduction and Extrapolation Techniques for Feynman Loop Integrals***.***E. de Doncker, F. Fujimoto, Y. Kurihara, T. Ishikawa, N. Hamaguchi, Y. Shimizu, F. Yuasa, In *Computational Science and Its Applications - A 2010*, Taniar, D. et al. (Eds.), Part II, Springer Lecture Notes in Computer Science, *LNCS* ***6017***(2010), 139-154.
* Recursive Box and Vertex Integrations for the One-loop Hexagon Reduction in the Physical Region.E. de Doncker, F. Fujimoto, Y. Kurihara, T. Ishikawa, N. Hamaguchi, Y. Shimizu, F. Yuasa, Proceedings of Science PoS(ACAT2010)073, <http://pos.sissa.it/archive/conferences/093/073/ACAT2010_073.pdf>
* Interdisciplinary Applications of Mathematical Modeling. E. de Doncker, K. Kaugars, S. Li, Y. Shimizu, J. Fujimoto, F. Yuasa, T. Ishikawa, N. Hamaguchi, Association for Computing Machinery (ACM) Proc. ICIS2009: ISBN 978-1-60558-710-3 (2009).
* Numerical Evaluation of Feynman Integrals by a Direct Computational Method. F. Yuasa, T. Ishikawa, J. Fujimoto, N. Hamaguchi, E. de Doncker and Y. Shimizu. *XII International Workshop on Advanced Computing and Analysis Techniques in Physics Research*. Pos(ACAT08)122 Proceedings of Science, ArXiv:0904.2823v1 [hep-ph] 18 April 2009, <http://arxiv.org/pdf/0904.2823>
* Status Report from the GRACE Group. Y. Yasui, T. Ueda, E. de Doncker, J. Fujimoto, N. Hamaguchi, T. Ishikawa, Y. Shimizu and F. Yuasa. *International Colliders Workshop - LCWS 2007/ILC 2007.* ArXiv:0710.2957v1 [hep-ph], 16 Oct 2007, <http://arxiv.org/pdf/0710.2957>
* Computation of Feynman Loop Integrals***.*** E. de Doncker, Y. Shimizu, J. Fujimoto and F. Yuasa. *Applied Mathematics and Mechanics*, *International Congress on Industrial and Applied Mathematics (ICIAM 2007), PAMM, Wiley InterScience (online) Journal,* **7**, 1 (2007) (Appeared 2009).
* Precise Numerical Results of Scalar One-Loop Integrals with Infrared Divergence. F. Yuasa, E. de Doncker, J. Fujimoto, N. Hamaguchi, T. Ishikawa and Y. Shimizu. Pos(ACAT)087 Proceedings of Science, ArXiv:0709.0777v2 [hep-ph] 19 Sep 2007, <http://arxiv.org/p>[df/0709.0777](http://arxiv.org/pdf/0709.0777)
* Precise Extrapolation Results of IR-Vertex and Box Integration with Extrapolation Methods.F. Yuasa, E. de Doncker, J. Fujimoto, N. Hamaguchi and Y. Shimizu. *XI International Workshop on Advanced Computing and Analysis Techniques in Physics Research – ACAT2007.*
* Molecular Modeling, Ab-Initio Methods and Numerical Integration. E. de Doncker. Position paper.
* Error Distribution for Iterated Integrals. Elise de Doncker, Shujun Li and Karlis Kaugars. Position paper.
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**Teaching Assignments, Course Development**

* Data and File Structures (CS 3310)
* Design and Analysis of Algorithms (CS 4310)
* Parallel Computations (CS 5260)
* Advanced Parallel Computations (CS 6260)
* Theory of Computation I (CS4800)
* Theory Foundations (CS5800)
* Advanced Theory of Computation (CS 6800)
* Algorithms (CS 5310)
* Advanced Algorithms (CS 6310)
* Topics in Computer Science (CS 5950, 6030) – on various topics,

e.g.: CS 6030 Emerging Technologies; CS 5950, 6030 High Performance Bioinformatics

* Computer Science Seminar (CS 6910) – various seminars
* Independent Study (CS 5990)
* MS Project (CS 6790)
* MS Thesis (CS 7000)
* Independent Research (CS 7100)
* Professional Field Experience (CS 7120)
* Doctoral Dissertation (CS 7300)
* Doctoral Research (CS 7350)

**Committee Service** (past/ current), incl.

Departmental Committees:  
Graduate Committee (Chair), Admission Committee   
Tenure and Promotion Committee (2014-2015 Chair)

Executive Committee, Sabbatical Leave Committee

Graduate Program Review

College Committees:  
College Promotion Committee (most recent Chair)

University Committees:

Distinguished Research Scholars Committee

WMU Graduate Program Review Committee

Presidential Commission on Gender Equity