

List of Publications by Mohammad Asadzadeh
(includes articles that are in press, submitted or under preparation)

REFERENSER

- [1] M. Asadzadeh *Convergence analysis of some numerical methods for neutron transport and Vlasov equations*. Ph. D. Thesis, Chalmers University of Technology and the University of Göteborg, 1986.
- [2] ———, *Analysis of a fully discrete scheme for neutron transport in two-dimensional geometry*, SIAM J. Numer. Anal., **23** (1986), 543–561.
- [3] ———, *L_2 -error estimates for the discrete ordinates method for three-dimensional neutron transport*, Trans. Theory Stat. Phys., **17** (1988), 1–24.
- [4] ———, *Numerical Approximations for Isotropic Neutron Transport Equation*. In the Discrete Kinetic Theory, Lattice Gas Dynamics and Foundations of Hydrodynamics, edited by I.S.I.-R. Monaco, World Scientific Publishing Co. (1989), 6-16.
- [5] ———, *L_p and eigenvalue error estimates for two-dimensional neutron transport*, SIAM J. Numer. Anal., **26** (1988), 66–87.
- [6] ———, *Streamline diffusion methods for the Vlasov-Poisson equations*. RAIRO Mathematical Modelling and Numerical Analysis, **24**(1990), 177-196.
- [7] M. Asadzadeh, P. Kumlin and S. Larsson, *The discrete ordinates method for the neutron transport equation in an infinite cylindrical domain*. Math. Methods Mod. Appl. Sci., **2** (1992), 317–338.
- [8] M. Asadzadeh *L_1 -convergence of the discrete ordinates for the neutron transport equation in an infinite cylindrical domain*. Nuclear Science and Engineering, **112** (1992), 383-391.
- [9] ———, *A review of the one-speed neutron Transport Approximation*. Proceeding of 25eme Congress National D'analyse Numerique, (1993), T1-T4.
- [10] M. Asadzadeh, and K. Eriksson, *On adaptive finite element method for Fredholm integral equations of the second kind*, SIAM J. Numer. Anal., **31** (1994), 831–855.
- [11] M. Asadzadeh and D. Tomasevic, *On Variational Nodal-Diffusion Approximations*. Transaction of American Nuclear Society, (1995), 171-173.
- [12] M. Asadzadeh *Streamline diffusion methods for the Fermi and Fokker-Planck equations*. Transport Theory and Statistical Physics, (1997), 319-340.
- [13] ———, *On convergence of FEM for the Fokker-Planck equation*. Proceedings of 20th International Symposium on Rarefied Gas Dynamics, ed by C. Shen, Peking University Press, Beijing, (1997), 309-314.
- [14] ———, *A finite element method for the neutron transport equation in an infinite cylindrical domain*. SIAM J. Numer. Anal., **35**(1998), 1299-1314.
- [15] ———, *Characteristic Methods for Fokker-Planck and Fermi Pencil Beam Equations*. Proceedings of 21th International Symposium on Rarefied Gas Dynamics, ed. by R. Brun et al, Vol II, 205-212, Marseille 1998.
- [16] ———, *A posteriori error estimates for the Fokker-Planck and Fermi pencil beam equations*. Math. Models and Methods in Appl. Sci., **10**(2000), 737-769.
- [17] ———, *Convergence of a discontinuous Galerkin scheme for the neutron transport*. Transport Theory and Statistical Physics, (2001), 357-383.
- [18] ———, *The Fokker-Planck operator as an asymptotic limit in anisotropic media*. Mathematics and Computer Modelling, **35** (2002), 1119-1133.
- [19] M. Asadzadeh and A. Sopasakis, *On Fully Discrete Schemes for the Fermi Pencil-Beam Equations*. Comput. Methods Appl. Mech. Engrg. **191** (2002), 4641-4659.
- [20] M. Asadzadeh, *On the stability of characteristic schemes for the Fermi equation*. Appl. Comput. Math., **1** (2002), 158-174.
- [21] ———, *Asymptotic and Numerical Analysis of Charged Particle Beams*. Journal of American Institute of Physics, (2003) CD-Rom, Proceedings of 23th RGD Symposium. Whistler, Canada, July 20-20, (2002).
- [22] M. Asadzadeh and P. Kowalczyk, *Convergence of Streamline Diffusion Methods for the Vlasov-Poisson-Fokker-Planck System*. Numer Methods Partial Differential Eqs., **21** (2005), 472-495.
- [23] F. A. Aliev, M. Asadzadeh, V. B. Larin, and N. I. Valieva, *An Inverse Problem of the Synthesis of Optimal Output Variable Regulators*. Appl. and Comput. Math., **5** (2006), 35-44.
- [24] M. Asadzadeh and A. Sopasakis, *Convergence of a hp Streamline Diffusion Scheme for Vlasov-Fokker-Planck system*. Math. Mod. Meth. Appl. Sci., **17**(2007), 1159-1182.
- [25] F. A. Aliev, M. Asadzadeh, C. Arcasoy, V. B. Larin, G. H. Mammadova, N. A. Safarova, and N. I. Valieva, *Computational Algorithms for Optimization Problems for Periodic Systems*. Preprint 2006:31. Department of Mathematics, Chalmers University of Technology, Göteborg University.
- [26] M. Asadzadeh and E. W. Larsen, *Linear transport equations in flatland with small angular diffusion and their finite element approximations*. Math and Computer Mod., **47**(2008), 495-514.

- [27] M. Asadzadeh, A. Schatz and W. Wendland, *A non-standard approach to Richardson extrapolation in the finite element method for second order elliptic problems*. Math. Comp. 78 (2009), no. 268, 1951–1973.
- [28] M. Asadzadeh, *On convergence of a h-p Streamline Diffusion and Discontinuous Galerkin Methods for the Vlasov-Poisson-Fokker-Planck System*. Proceedings of 26th International Symposium on Rarefied Gas Dynamics (RGD26), Kyoto, Japan 20-25 July 2008. American Institute of Physics (AIP), 1084 (2009), 99-104.
- [29] M. Asadzadeh and L. Thevenot, *On discontinuous Galerkin and discrete ordinates approximations for neutron transport equation and the critical eigenvalue*. Polytecnico di Torino, 2009. IL NUOVO CIMENTO, 33 (2010), 21-29. Proceedings of ICTT21.
- [30] M. Asadzadeh and L. Beilina, *A posteriori error analysis in a globally convergent numerical method for a hyperbolic coefficient inverse problem*, Inverse Problem 26 (2010), 115007.
- [31] M. Asadzadeh and P. Kowalczyk, *Convergence of a mixed discontinuous Galerkin and finite volume scheme for the 3 dimensional Vlasov–Poisson–Fokker–Planck system*. Proceedings of 8th Enumath, Uppsala University, (2010). 97-105.
- [32] M. Asadzadeh, A. Brahme and J. Kempe, *Ion transport in inhomogeneous media based on the bipartition model for primary ions*. Computer and Mathematics with Applications. 60 (2010) 2445-2459.
- [33] M. Asadzadeh, A. Brahme and J. Xin, *Galerkin methods for primary ion transport in inhomogeneous media*. Kinet. Relat. Models 3 (2010), 373-394.
- [34] M. Asadzadeh, A. Schatz and W. Wendland, *Asymptotic error expansions for the finite element method for second order elliptic problems in R_N , $N \geq 2$, I: Local interior expansions*. SIAM, J. Numer. Anal. Volume 48, Issue 5, pp. 2000-2017 (2010).
- [35] M. Asadzadeh and K. Bartoszek, *A combined discontinuous Galerkin and finite volume scheme for multi-dimensional VPFP system*. Proceedings of 27th RGD, Pacific Grove, CA, 10-27 July, 2010. American Institute of Physics (AIP), Melville, New York, 2011, pp 57-63.
- [36] M. Asadzadeh, D. Rostamy and F. Zabihi, *A posteriori error estimates for a coupled wave system with a local damping*. Journal of Mathematical Sciences (JMS), Vol. 175, No. 3, June (2011), pp 228-248.
- [37] M. Asadzadeh and T. Gebäck, *Analytic Fermi-Eyges solution based on continuous slowing down assumption*. TTSP 41 (2012) no 5-6, pp 325-336.
- [38] M. Asadzadeh and T. Gebäck, *Spherical harmonics and Galerkin methods for the charged particle transport equation*. TTSP 41 (2012), pp 53-70.
- [39] M. Asadzadeh, *A new approach to Richardson extrapolation in the finite element method*. Proceeding of 9th Seminar on Differential Equations and Dynamical Systems, 11-13 July 2012, Azerbaijan Shahid Madani University, Eds M. Jahanshahi and N. Aghazadeh, (2012) pp 1-10.
- [40] ———, *Fokker-Planck operator as asymptotic limit, Inverse kinetic model and FEMs for VPFP*. Proceeding of 43th Iranian Mathematical Conference, 27-30 August 2012, University of Tabriz, Eds G.R. Hojjati (2012).
- [41] M. Asadzadeh, D. Rostamy and F. Zabihi, *Discontinuous Galerkin and multiscale variational schemes for a coupled nonlinear system of Schrödinger equations*. Numer. Methods Partial Differential Equations 29 (2013), no. 6, 1912–1945.
- [42] M. Asadzadeh, E. Kazemi, *On convergence of h and hp finite element methods for the three dimensional Fermi equation*. International Journal of Numerical Analysis and Modeling (IJNAM), Vol 10, No 5, pp 860–875, (2013).
- [43] M. Asadzadeh, E. Hashemi, and A. Kozakevicius, *Efficiency of combined Daubechies and statistical parameters applied in mammography*. Appl. Comput. Math. 12 (2013), no. 3, 289–305.
- [44] M. Asadzadeh and L. Beilina, *Adaptive approximate globally convergent algorithm with backscattered data*. Springer Proceedings in Mathematics and Statistics, Vol 52, pp 1-20, (2013)
- [45] M. Asadzadeh, *On a Canonical form for Maxwell Equations and Convergence of Finite Element Scheme for Vlasov–Maxwell system*. Journal of Computational and Theoretical Transport, pp 1-16,
- [46] M. Asadzadeh, E. Kazemi, R. Mokhtari, *Combined discrete-ordinates and streamline diffusion methods for flows through a channel with arbitrary cross-section based on the BGK model*. SIAM, Journal on Scientific Computing (2014), B729–B748.
- [47] M. Asadzadeh and K. Bartoszek. *Convergence of finite volume scheme for three dimensional Poisson's equation*. Journal of Mathematical Sciences (JMS), Vol 202, No2, (2014), pp 130-153.
- [48] M. Asadzadeh and P. Kowalczyk, *Backward Euler and mixed discontinuous Galerkin methods for the Vlasov–Poisson system, Part I: Convergence Analysis*. Adv. Comput. Math. 41 (2015), no. 4, 833–852.
- [49] A. Vidal-Ferrandiz, S. Gonzalez-Pintor, D. Ginestar, G. Verdu, M. Asadzadeh and C. Demaziere, *Use of discontinuity factors in higher-order finite element methods*. Annals of Nuclear Energy 87 (2), (2016), 728–738.
- [50] M. Asadzadeh and D. Rostamy, *On multiscale variational streamline diffusion scheme for a coupled nonlinear Telegraph system*. J. Comput. Theor. Transp. 45 (2016), no. 7, 509–527.
- [51] M. Asadzadeh and C. Standar, *A posteriori error estimates for streamline-diffusion and discontinuous Galerkin methods for the Vlasov–Maxwell system*. BIT, 58 (2018), no. 1, 5–26.

- [52] M. Asadzadeh, L. Beilina, M. Naseer and C. Standar, *A priori error estimates and computational studies for a Fermi pencil-beam equation*, arXiv:1606.05085. J. Comput. Theor. Transp. 47 (2018), no. 1-3, 125–151.
- [53] M. Asadzadeh, P. Kowalczyk and C. Standar, *On hp-streamline-diffusion and Nitsche schemes for the relativistic Vlasov-Maxwell system*. <https://arxiv.org/abs/1711.00271>. Kinet. Relat. Models 12 (2019), no. 1, 105–131.
- [54] M. Asadzadeh, C. Standar, *Approximating the nonlinear Schrödinger equation by a two level linearly implicit finite element method*. <https://arxiv.org/abs/1711.00277>. J. Math. Sci. (N.Y.) 239 (2019), no. 3, Problems in mathematical analysis. No. 97 (Russian).
- [55] M. Asadzadeh, P. Kowalczyk and C. Standar, *Convergence of hp streamline diffusion method for Vlasov-Maxwell System*. J. Comput. Theor. Transp. 48 (2019), no. 7, 263–279.
- [56] A. Mylonakis and M. Asadzadeh, *A finite volume method for the Fermi pencil-beam equation*. Proceedings of The International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering (M&C 2021).
- [57] M. Asadzadeh and L. Beilina, *Convergence of stabilized P1 finite element scheme for time harmonic Maxwell's equations*. Mathematical and numerical approaches for multiwave inverse problems, 33-43, Springer Proc. Math. Stat., 328, Springer, Cham, [2020], ©2020.
- [58] M. Asadzadeh and B. Nemati Saray, *On a multiwavelet spectral element method for integral equation of a generalized Cauchy problem*. BIT, 2022. 0006-3835 (ISSN).
- [59] M. Asadzadeh and L. Beilina, *Stability and Convergence Analysis of a Domain Decomposition FE/FD Method for Maxwell's Equations in the Time Domain*. Algorithms (2022), 15, 337-, <https://doi.org/10.3390/a15100337>
- [60] M. Asadzadeh and L. Beilina, *A stabilized P1 domain decomposition finite element method for time harmonic Maxwell's equations*. Math. Comput. Simulation 204 (2023), 556-574.

Articles in progress

- [61] M. Asadzadeh, E. Kazemi and A. Logg *A fully discrete scheme based on combined Discrete-Ordinates and discontinuous Galerkin methods for a flow described by the BGK model*. In preparation.
- [62] M. Asadzadeh, G. Zouraris, *Optimal convergence for a nonuniform linearly implicit finite element for the nonlinear Schrödinger equation*. In preparation.
- [63] M. Asadzadeh, S. Larsson and F. Saedpanah, *On finite element methods for semilinear parabolic problem with gradient dependent nonlinearity*. In preparation.
- [64] M. Asadzadeh, R. Sandboge, N. Eriksson and S. Larsson, *Subscale Finite Element Method For Nonlinear Systems of Advection–Diffusion–Reaction Equations. I: Fundamental framework*. In preparation.
- [65] M. Asadzadeh, S. Brull, *Discontinuous Galerkin approximation for the Vlasov-Poisson-BGK system: A fixed point approach*. In preparation.
- [66] M. Asadzadeh, R. Sandboge and N. Eriksson *Geometric algebra/geometric calculus in finite elements for PDEs*. In preparation.
- [67] M. Asadzadeh and K. Bartoszek, *Modelling evolution by its generator*. In preparation.

Books and Lecture notes

- [68] M. Asadzadeh, *Analys och linjär algebra, Studentlitteratur*, Upplaga 1, 2004, pp. 399, ISBN: 91-44-03793-7.
- [69] ———, *Analys och linjär algebra, Studentlitteratur*, Upplaga 2, 2007, pp. 431, ISBN: 9789144005256.
- [70] M. Asadzadeh, *An Introduction to Finite Element Method for Differential Equations*. Wiley, 2020, p. 332.
- [71] M. Asadzadeh and K. Holmåker, *Fourier Analysis and its Applications* (in preparation).
- [72] M. Asadzadeh and R. Emanuelsson, **Handbook of Mathematical Concepts and Formulas for students in science and engineering**. World Scientific 2022/2023.
- [73] M. Asadzadeh and R. Emanuelsson, *Tabeller och Formuler* (in preparation).
- [74] M. Asadzadeh, *PDE Lecture Notes 2001-2017 (electronic)*.
- [75] ———, *Lecture Notes in Fourier analysis 2008 (electronic)*.
- [76] ———, *An introduction to finite element methods for differential equations in 1D, 2006-2017 (Compendium)*.
- [77] M. Asadzadeh and R. Emanuelsson, *Flervariabelanalys (available upon request)*.