CURRICULUM VITAE

Giacomo Dimarco
Full Professor in Applied Mathematics
Department of Mathematics and Computer Science
University of Ferrara

1 Personal Data

- **Date/Place of Birth:** 21/03/1977, Ferrara, Italy.
- **Address:** Via Ariosto n^{o}40, 44121 Ferrara, Italy
- **Contact:** Department of Mathematics and Computer Science, University of Ferrara, Via Machiavelli, 30 44121 Ferrara, Italy.
- **Marital Status:** Living common law, 2 children.
- **Citizenship:** Italian.
- **Languages:** Italian, English, French.
- **E-mail:** giacomo.dimarco@unife.it

2 EDUCATION AND EMPLOYMENT HISTORY

- **31/12/2021-Today**: Full Professor in Applied Mathematics, Department of Mathematics and Computer Science, University of Ferrara.
- **1/1/2014-30/12/2021**: Associate Professor in Numerical Analysis, Department of Mathematics and Computer Science, University of Ferrara.
- **1/1/2014-Today**: Associate Professor, Department of Mathematics and Computer Science, University of Ferrara.
- **1/2/2019-Today**: Director of the Center for Modeling, Computing and Statistics of the University of Ferrara (Interdepartmental Center).
- **1/9/2009-31/12/2013**: Maître de Conférences at Université Paul Sabatier, Equipe Mathématiques pour l'Industrie et la Physique, Institut de Mathématiques Toulouse & CNRS UMR 5219.

- **1/12/2008-31/8/2009**: Post-Doc at CEA (Commissariat à l'Energie Atomique et aux Energies Alternatives), Paris, France.
- **1/1/2008-1/12/2008**: Post-doc at Department of Mathematics and Computer Science, University of Ferrara, Italy.
- **15/2/2008**: Doctor Europaeus.
- **15/2/2008**: PhD in Applied Mathematics, University of Ferrara. PhD thesis title: Modeling and Numerical Methods for Multiscale Hyperbolic and Kinetic Equations.
- **12/07/2004**: Laurea Degree in Aerospace Engineering University of Pisa (Italy).

3 Honors/Affiliations

- **Associate Editor:** Journal of Computational Physics from 2019 (First Class Applied Mathematics-Anvur Classification).
- **Editorial Board:** Annali dell'Universitá di Ferrara, Scienze Matematiche, Sezione VII, Springer, from 2018.
- **ASN:** Abilitazione Scientifica Nazionale (2017) in Mathematical Physics for Full Professor Position.
- **ASN:** Abilitazione Scientifica Nazionale (2017) in Numerical Analysis for Full Professor Position.
- **ERC** Starting Grant PE1 finalist 2014 (Short list and audition in Bruxelles).
- **Prime** d'Excellence Scientifique (PES) 2011 from the Ministère de l'Enseignement Supérieur et de la Recherche (2011-2014).
- **Winner** of the INDAM (Italian National Institute of Higher Mathematics)-SIMAI (Italian Society of Industrial and Applied Mathematics) Award for the Three Best Italian PhD thesis in Applied Mathematics between 2006-2008.
- **Publication** of the PhD thesis in the Annals of the Ferrara University as the best thesis in Mathematics and Computer Science of 2008 of Ferrara University.

4 Academic Service

- **2023** Member of the Hiring Committee, Mathematical Department, University of Trento, Italy (RTD-B).
- **2022** Member of the Hiring Committee, Mathematical Department, University of Ferrara, Italy (Associate Professor).

- **2020-2022** Member of the Research Council (Consiglio della Ricerca) of the University of Ferrara, Italy.
- **2020** Member of the PhD Jury of the Department of Mathematics of the University of Leuven, Belgium.
- **2020** Member of the Department planning Committee (Programmazione Dipartimentale) Department of Mathematics and Computer Science, University of Ferrara.
- **2020** Member of the VQR (Valutazione della qualitá della ricerca) committee for the Department of Mathematics and Computer Science, University of Ferrara.
- **2020** Member of the Hiring Committee, Mathematics Department, University of Roma, La Sapienza, Italy (RTD-A).
- **2018-2021** Member of the Committee for the new Degree in Mathematics of the University of Ferrara, Italy.
- **2018-Now** Member of the Steering Committee (Comitato di indirizzo) for the Degree in Mathematics of the University of Ferrara, Italy.
- **2018-Now** Member of the SUA-CDS (Scheda Unica Annuale dei Corsi di Studio) Committee for the Degree in Mathematics of the University of Ferrara, Italy.
- **2018** Member of the Hiring Committee for the Admission to the joint Doctoral Program of the University of Ferrara, Modena & Reggio-Emilia and Parma.
- **2017** Member of the Committee for recognition of previous studies (Commissione Crediti accesso al Corso di Laurea in Matematica), Department of Mathematics, University of Ferrara.
- **2017** Member of the Committee for the realization of the Double Degree in Mathematics between the University of Ferrara, Italy and the University of Valencia and the Polytechnical University of Valencia, Spain.
- **2016** Member of the Hiring Committee, Engineering Department, University of Trento, Italy (RTD-A).
- **2015-now** Member of the Academic Board (Collegio di Dottorato) of the joint PhD Program of the University of Ferrara, Modena & Reggio-Emilia and Parma.
- **2014-2016** Department Delegate for the Internationalization Committee of the University of Ferrara, Italy.
- **2014-2016** Department Delegate for the International Mobility Committee of the University of Ferrara, Italy.
- **2015** Member of the PhD Committee of the Mathematics Department of the University of Strasbourg, France.

- **2011** Member of the Hiring Committee, Mathematics Department, University Paul Sabatier, France.

5 Visiting (Long and short research periods)

- **2022**: Special semester on Partial Differential Equations in Kinetic Theories. Newton Institute, Cambridge, United Kingdom. (approx. 3 weeks).
- **2018**: Mathematics Department, University of Rennes, France. (approx. 1 week).
- **2016**: MIP Laboratory University Paul Sabatier Toulouse, France. (approx. 1 week).
- **2016**: Imperial College, London, UK. (approx. 1 week).
- **2015**: Mathematics Department, University of Rennes, France. (approx. 1 week).
- **2015**: Imperial College, London, UK. (approx. 1 week).
- **2010**: Department of Mathematics and Computer Science, University of Catania. (approx. 1 week).
- **2010**: Special semester on Partial Differential Equations in Kinetic Theories. Newton Institute, Cambridge, United Kingdom. (approx. 3 weeks).
- **2008**: MIP Laboratory University Paul Sabatier Toulouse, France. (approx. 1 week).
- **2008**: UCLA Mathematics Department, Los Angeles, California. (approx. 2 weeks).
- **2007**: UCLA Mathematics Department, Los Angeles, California. (approx. 6 months).
- **2007**: Mathematics Department, University of Kaiserslautern, Kaiserslautern, Germany. (approx 1 week).
- **2006**: MIP Laboratory University Paul Sabatier Toulouse, France. (approx. 1 month).
- **2005**: MIP Laboratory University Paul Sabatier Toulouse, France. (approx. 3 months).

6 PhD students and Post-docs

- **Supervisor.** PhD student: Ali Abu Sayfan, University of Ferrara, Italy (2023).
- **Co-supervisor.** Post-doc student: V. Rispoli, University Paul Sabatier, Toulouse, France (2013-2014).

- **Co-supervisor.** PhD thesis: T. B. N. Mac, University Paul Sabatier, Toulouse, France (2011-2014).
- **Co-supervisor.** Post-doc student: V. Rispoli, University of Ferrara, Ferrara, Italy (2012-2013).
- **Co-supervisor.** PhD thesis: M. Leroy-Leretre University Paul Sabatier, Toulouse, France (2010-2014).

7 Organization and Scientific Committees of Schools, Congress and Workshops

- **Special Session:** Interfaces between kinetic equations and many-agent social systems. The 10th International Congress on Industrial and Applied Mathematics, ICIAM Tokyo, 20-25 August 2023. Organizer.
- **Workshop:** Numerical Aspects of Hyperbolic Balance Laws and Related Problems. Cortona June 20-25, 2023. Member of the Scientific Committee.
- **Workshop:** Numerical Aspects of Hyperbolic Balance Laws and Related Problems. University of Verona December 15-17, 2021. Member of the Scientific Committee.
- **School:** Kinetic & mean field problems: theory, numerics and applications. University of Ferrara, Italy. 25-28 October 2021. Member of the Scientific Committee.
- **School:** From interacting particle systems to kinetic equations. University of Verona, Italy. 26-30 November 2018. Member of the Scientific Committee.
- **Special Session:** Models and Numerical methods in kinetic theory. AIMS (Conference on Dynamical Systems, Differential Equations and Applications), Taipei, 5-9 July 2018. Organizer.
- **Workshop**: Recent advances in multiscale modeling and numerics for hyperbolic and kinetic equations, INdAM Day Ferrara April, 2018. Scientific and Organizing Committees.
- **Conference**: Numerical Aspects of hyperbolic balance laws and related problems, Ferrara, 16-20 April 2018. Scientific and Organizing Committees.
- **Conference**: Numerical Aspects of hyperbolic balance laws and related problems, Ferrara, 17-19 December 2015. Scientific and Organizing Committees.
- **Mini symposium:** Eleventh International Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing, Leuven, 6-11 April 2014. Organizer.
- **Workshop:** On Asymptotic Preserving Schemes. Ile de Porquerolles, 20-26 May 2012. Organizing Committee.

- **Workshop:** On Kinetic and Macroscopic Modeling for Socio-Economic and related Problems. Vigevano 27-29 Novembre 2008. Organizing Committee.

8 Involvement and Direction of Research Programs

- PRIN (Research Project of National Interest, Italy) 2020: **Integrated Mathematical Approaches to Socio–Epidemiological Dynamics Responsible of the Research Unit**.
- FIR (Fondo per l'incentivazione alla ricerca) Università di Ferrara 2019. **Principal Investigator**.
- FFABR (Fondo di finanziamento per le attivitá base di ricerca) Italian Ministry of Research 2017-2020. **Principal Investigator**.
- FIR (Fondo per l'incentivazione alla ricerca) Università di Ferrara 2017. **Principal Investigator**.
- ANR (Agence National de la Recherche, France) Program Défi 7 2015. **MOONRISE: Models, oscillations and numerical schemes. Participant.**
- Italian-French University: Program Galileo 2014. **G 14: Fast asymptotic preserving and semi-Lagrangian schemes for high performance computing: applications to plasmas**. **Principal Investigator**.
- ANR (Agence National de la Recherche, France) Blanc 2010: **BOOST: Building the future of numerical methods for ITER**. **Principal Investigator**.
- ANR (Agence National de la Recherche, France) Program modèles numériques 2011: **MOTIMO: Seminal Motility Imaging and Modeling. Participant.**.
- PRIN (Research Project of National Interest, Italy) 2009: **Advanced numerical methods for kinetic equations and balance laws with source terms. Participant**.
- HYKE 2003-2005: **HYperbolic and Kinetic Equations : Asymptotics, Numerics, Analysis. Participant.**

9 Teaching Activity

- **2022** Rational Mechanics. Department of Engineering, University of Ferrara 60 hours per year (6 CFU). Responsible for the course.
- **2022** Stochastic Calculus. Department of Mathematics, University of Ferrara 48 hours per year (6 CFU). Responsible for the course.

- **From 2018 to 2020 (Three years)** Numerical methods for partial differential equations. Department of Mathematics, University of Ferrara 63 hours per year (9 CFU). The course is divided in 1/3 models, 1/3 numerical methods and 1/3 coding. Responsible for the course.

- **2021** Probability and Statistics. Department of Mathematics, University of Ferrara. 24 hours (3 CFU). Responsible for the course.

- **2020-2021 (Two years)** Calculus II. Department of Chemistry, University of Ferrara. 24 hours (3 CFU).

- **2021** Numerical methods for data representation and simulation. Department of Mathematics, University of Ferrara. 24 hours (3 CFU). Responsible for the course.

- **From 2014 to 2022 (Eight years)** Probability and Statistics. Engineering school, University of Ferrara. 60 hours per year (6 CFU per year). Responsible for the course.

- **From 2015 to 2017 (Three years)** Mathematical methods for Economists, Economic School, University of Ferrara. 56 hours per year (8 CFU per year). Basic calculus and linear algebra. Responsible for the course.

- **2017** Models and numerical methods, University of Ferrara. 42 hours (6 CFU per year). The course is divided in 1/3 models, 1/3 numerical methods and 1/3 coding. Hours taught 20.

- **2016** Models and numerical methods, University of Ferrara. 42 hours (6 CFU per year). The course is divided in 1/3 models, 1/3 numerical methods and 1/3 coding. Hours taught 20.

- **2015** Models and numerical methods, University of Ferrara. 42 hours (6 CFU per year). The course is divided in 1/3 models, 1/3 numerical methods and 1/3 coding. hours taught 20.

- **2014** Models and numerical methods, University of Ferrara. 42 hours (6 CFU per year). The course is divided in 1/3 models, 1/3 numerical methods and 1/3 coding. Responsible for the course: hours taught 22.

- **2013:** Multiscale models: ISAE (School of Aerospace Engineering) Toulouse. Responsible of the course, 18 hours eqTD taught.

- **Fall 2011 and 2012:** Non linear hyperbolic partial differential equations. M2 recherche. University of Toulouse III. Co-responsible, 15 hours eqTD taught .

- **Fall 2011-2012 and 2013:** Non linear hyperbolic partial differential equations: theory and numerical methods. M2 Ingégnerie Mathématique. University Toulouse III. Responsible for the course, 24 hours eqTD taught per year.

- **Fall 2011-2012 and 2013:** Numerical Analysis. L3 Mathématiques et Applications. University of Toulouse III. Responsible for the course, 30 hours eqTD taught per year.
- **Spring 2012:** Mathematical analysis II, Préparation concours écoles d'ingénieurs. University of Toulouse III. Responsible for the course, 30 hours eqTD taught per year.
- **Fall 2011-2012:** Hyperbolic and parabolic partial differential equations: theory and numerical methods. M1 Ingégnerie Mathématique. University of Toulouse III. Responsible for the course, 24 hours eqTD taught per year.
- **Spring 2011:** Ordinary differential equations, L2 Mathématiques et Applications. University Toulouse III. Responsible for the course, 30 hours eqTD taught per year.
- **Spring 2010 and 2011:** Numerical methods, L2 Mathématiques et Applications. University of Toulouse III. Responsible for the course, 30 hours eqTD taught per year.
- **Fall 2009-2010:** Mathematical analysis, L1 Mathématiques et Applications. University of Toulouse III. Responsible for the course, 30 hours eqTD taught per year.

10 Selected Invited Talks

- **August 2023.** The 10th International Congress on Industrial and Applied Mathematics, ICIAM. **Invited Minisymposium.**
- **May 2023.** Workshop: mathematical challenges in social systems and applications to public health. Buenos Aires, Argentina. **Invited Speaker.**
- **December 2022.** Workshop: kinetic and hyperbolic equations: modeling, analysis and numerics. Toulouse, France. **Invited Speaker.**
- **December 2022.** Workshop: From Kinetic Theory to Data Science and Related Topics, Pavia. Italy. **Invited Speaker.**
- **July 2022.** Summer School. Transport in biology, computer science, physics and urban traffic. Marseille, France. **Course.**
- **June 2022.** Workshop: Computational Uncertainty Quantification. Schrodinger Institute, Wien, Austria. **Invited Speaker.**
- **May 2022.** Workshop: Frontiers in numerical analysis of kinetic equations. Newton Institute, Cambridge, UK. **Invited Speaker.**
- **May 2022.** Workshop: Efficient high-order time discretization methods for PDEs. Capri, Italy.

- **May 2021.** The Legacy of Carlo Cercignani: from Kinetic Theory to Turbulence Modeling. Politecnico of Milano, Italy. **Invited Speaker.**
- **June 2021.** Workshop and summer school on kinetic theory and related applications. Beijing Computational Science Research Center, China. **Invited Speaker.**
- **June 2021.** Workshop on Numerical Methods for Kinetic Equations Chaire Jean-Morlet. Marseille, France, June 2021. **Invited Speaker.**
- Recent developments in numerical kinetic theory. Madison, US. **Invited Speaker.**
- **December 2019** Workshop: Emergent Phenomena- from Kinetic Models to Social Hydrodynamics held during the Quantum and Kinetic Problems: Modeling, Analysis, Numerics and Applications special semester. National University Singapore. **Invited Speaker.**
- **December 2019** Workshop: Theory and Numerics in Kinetic Theory. University of Parma, Italy. **Invited Speaker.**
- **July 2019** Mini-symposium at SciCADE 2019, Scientific Computation and Differential Equations. Innsbruck, Austria, July 2019. **Invited Minisymposium.**
- **July 2019** Two Mini-symposia at ICIAM: International Congress on Industrial and Applied Mathematics. Valencia, Spain. **Invited Minisymposia.**
- **May 2019** Workshop: Asymptotic methods and numerical approximations of multiscale evolution problems, and uncertainty quantification. ENS Rennes, France. **Invited speaker.**
- **May 2019** Conference: Sharing High order Advanced Research Know-How on Finite Volume, SHARK-FV 2019. Minho, Portugal.
- **May 2019** Conference: Efficient high order time discretization methods for PDEs. Capri, Italy, May 2019. **Invited speaker.**
- **February 2019** Workshop: Numerical methods for mutiscale control problems and applications. Verona, Italy. **Invited speaker.**
- **December 2018** Mini-Workshop: Innovative Trends in the Numerical Analysis and Simulation of Kinetic Equations. Oberwolfach, Germany. **Invited participant and speaker.**
- **October 2018** Recent trends in kinetic modelling and related fields. Politecnico di Torino, Italy. **Invited Speaker.**
- **September 2018** Special Session: Advances in Kinetic Theory, UMI-SIMAI-PTM Joint Meeting, Wroclaw, Poland. **Invited Minisymposium.**
- **September 2018** Conference on Numerical methods for PDE. Cargese, France. **Invited Speaker.**

- **June 2018** Conference: Multiscale numerical methods in plasma physics. Fisica del plasma e matematica applicata. CNR, Rome. **Invited Speaker.**
- **June 2018** Workshop Geometric and Multi Scale numerical methods. Rennes, France.
- **May 2018**. Workshop on Kinetic Theory for control, games and uncertainty. Aachen University, Germany. **Invited Speaker.**
- **November 2017**. Modeling and computational approaches to Biology and Medicine. University of Toulouse III, France.
- **June 2017**. Modeling and computational approaches to Biology and Medicine. CNR Rome, Italy.
- **September 2016**. SIMAI (Italian Society for Industrial and Applied Mathematics) annual meeting 2016. Polytechnic of Milan, Italy. **Invited Minisymposium**
- **July 2016**. 30th international Symposium on Rarefied Gas Dynamics, University of Victoria, Canada. **Invited Speaker**.
- **June 2016**. Kinetic equations from theory to models, Imperial College London, UK. **Invited Speaker**.
- **June 2016**. Asymptotic behavior of systems of PDE arising in physics and biology, University of Lille, France. **Invited Speaker**.
- **April 2016**. Boundary value problems and Multiscale coupling methods for kinetic equations, University of Madison, US. **Invited Speaker**.
- **October 2015**. Scalable methods for kinetic equations, Oak Ridge National Laboratory US. **Invited Speaker**.
- **August 2015**. 8th International Congress on Industrial and Applied Mathematics, ICIAM 2015, Beijing China.**Invited Minisymposium**.
- **June 2015**. Probabilistic numerical methods for non linear PDEs, Imperial College, London UK. **Invited Speaker**.
- **March 2015**. High Performance and Parallel Computing Methods and Algorithms for Multiphase/Complex Fluids, Singapore. **Invited Speaker**.
- **March 2015**. SIAM Conference on Computational Science and Engineering, Salt Lake City, US. **Invited Minisymposium**.
- **July 2014**. The 10th AIMS conference on Dynamical System, Differential equations and Applications, Madrid Spain. **Invited Minisymposium**.
- **May 2014**. Shark-FV 2014, sharing higher order advanced research know-how on finite volume, Ofir Portugal. **Invited Speaker**.

- **December 2013**. MAC days. Model adaptation and coupling days. **Invited Speaker**.
- **September 2013**. IperMiB2013: 15th Italian Meeting on Hyperbolic Equations. Milan, Italy. **Invited Speaker**.
- **September 2013**. Numerical approximations of hyperbolic systems with source terms and applications. Aachen, Germany. **Invited Speaker**.
- **June 2012**. 21th International Conference on Domain Decomposition Methods-DD21. Inria-Rennes, France. **Invited Minisymposium**
- **July 2011**. 7th International Congress on Industrial and Applied Mathematics, ICIAM 2011. Vancouver, Canada. **Invited Minisymposium**.
- **April 2011**. European Workshop on High Order Nonlinear Numerical Methods for Evolutionary PDEs: Theory and Applications, HONOM 2011, Trento, Italy. **Invited Speaker**.
- **January 2011**. Numerical Methods for stiff problems in Hamiltonian systems and kinetic equations, Saint Malo, France. **Invited Speaker**.
- **September 2010**. Fluid-Kinetic Modelling in Biology, Physics and Engineering. Newton Institute, Cambridge, UK. **Invited Speaker**.
- **June 2010**. Emerging Topics in Dynamical Systems and Partial Differential Equations. Barcelona, Spain. **Invited Minisymposium**.
- **June 2010**. SIMAI (Italian Society for Industrial and Applied Mathematics) annual meeting 2010. University of Cagliari, Italy. **Invited Minisymposium**.
- **May 2009**. SMAI annual meeting 2009. Alpes Maritimes, France. **Invited Minisymposium**
- **September 2008**. SIMAI (Italian Society for Industrial and Applied Mathematics) annual meeting 2008. University La Sapienza. Roma, Italy. **Invited Minisymposium**.
- **July 2008**. SIAM annual meeting 2008. San Diego, US. **Invited Minisymposium**.
- **March 2007**. 14th International Conference on Finite Elements in flow Problems, Santa Fe, US. **Invited Minisymposium**.
- **June 2006**. Mathematics and its Applications. Mathematics Department, Politecnico di Torino, Italy. **Invited Minisymposium**.

11 Publication list

Referred Journal Articles

1. **Locally structure-preserving div-curl operators for high order discontinuous Galerkin schemes.** Boscheri, Walter; Dimarco, Giacomo; Pareschi, Lorenzo, J. Comput. Phys. 486 (2023), Paper No. 112130, 25 pp.

2. **A multi-agent description of the influence of higher education on social stratification.** G.Dimarco, G. Toscani, M. Zanella. Journal of Economic interaction and coordination, (2022).

3. **Kinetic modelling of epidemic dynamics: social contacts, control with uncertain data, and multiscale spatial dynamics.** G. Albi, G. Bertaglia, W. Boscheri, G.Dimarco, L. Pareschi, G. Toscani, M. Zanella. Bellomo N., Chaplain M.A.J. (eds) Predicting Pandemics in a Globally Connected World, Vol. 1 (2022) Modeling and Simulation in Science, Engineering and Technology.

4. **A new mixed Boltzmann-BGK model for mixtures solved with an IMEX finite volume scheme on unstructured meshes.** M. Bisi, W. Boscheri, G. Dimarco, M. Groppi, G. Martalò. Appl. Math. Comput. 433 (2022), Paper No. 127416, 28 pp.

5. **On a hybrid continuum-kinetic model for complex fluids.** A. Chertock, P. Degond, G. Dimarco, M. Lukáčova-Medvidová, A. Ruhi. Partial Differ. Equ. Appl. 3 (2022), no. 5, Paper No. 63, 28 pp.

6. **Optimal control of epidemic spreading in presence of social heterogeneity.** G. Dimarco, G. Toscani, M. Zanella. Philos. Trans. Roy. Soc. A 380 (2022), no. 2224, Paper No. 20210160, 16 pp.

7. **A high order conservative semi-Lagrangian solver for 3D free surface flows with sediment transport on Voronoi meshes.** M. Bergami, W. Boscheri, G. Dimarco. Commun. Appl. Math. Comput. 5 (2023), no. 2, 596–637.

8. **Kinetic derivation of Aw-Rascle-Zhang-type traffic models with driver-assist vehicles,** G. Dimarco, A. Tosin, M. Zanella. J. Stat. Phys. 186 (2022), no. 1, Paper No. 17, 26 pp.

9. **High order finite volume schemes with IMEX time stepping for the Boltzmann model on unstructured meshes** W. Boscheri, G. Dimarco. Computer & Fluids 233, 105224, (2022).

10. **Social contacts and the spread of infectious diseases.** G. Dimarco, B. Perthame, G. Toscani and M. Zanella. Journal of Mathematical Biology 83(1),4 (2021).

11. **A data-driven epidemic model with social structure for understanding the COVID-19 infection on a heavily affected Italian Province,** M. Azzi, C.

Bardelli, S. Deandrea, G. Dimarco, S. Figini, P. Perotti, G. Toscani, M. Zanella To appear in Mathematical Models and Methods in Applied Sciences.

12. **An efficient all Mach second order finite volume solver for compressible Navier-Stokes equations.** W. Boscheri, G. Dimarco, M. Tavelli. Comput. Methods Appl. Mech. Engrg. 374, 113602, 39 pp, (2021).

13. **A new deviational Asymptotic Preserving Monte Carlo method for the homogeneous Boltzmann equation.** A. Crestetto, N. Crouseilles, G. Dimarco, M. Lemou. Commun. Math. Sci. 18, no. 8, 2305–2339, (2020).

14. **Social climbing and Amoroso distribution** G. Dimarco, G. Toscani. Math. Models Methods Appl. Sci. 30, no. 11, 2229–2262, (2020).

15. **Wealth distribution under the spread of infectious diseases**. G. Dimarco, L. Pareschi, G. Toscani, M. Zanella. Physical Review E 102, 022303 (2020).

16. **High order Central WENO-Implicit-Explicit Runge Kutta schemes for the BGK model on general polygonal meshes.** W. Boscheri, G. Dimarco, Journal of Computational Physics 422, 109766 (2020).

17. **Implicit-Explicit Multistep methods for hyperbolic systems with multiscale relaxation.** G. Albi, G. Dimarco, L. Pareschi, SIAM Journal on Scientific Computing 42, pp. A2402-A2435 (2020).

18. **A second order all Mach number IMEX finite volume solver for the three dimensional Euler equations.** W. Boscheri, G. Dimarco, R. Loubère, M. Tavelli, M.-H. Vignal. Journal of Computational Physics Vol. 415, 109486, (2020).

19. **Multiscale variance reduction methods based on multiple control variates for kinetic equations with uncertainties.** G. Dimarco and L. Pareschi. SIAM, Multiscale Modeling and Simulation Vol. 18, pp. 351-382, (2020).

20. **The Aw-Rascle Traffic Model: Enskog-Type Kinetic Derivation and Generalisations** G. Dimarco and A. Tosin. Journal of Statistical Physics Vol. 178, pp. 178-210, (2020).

21. **Kinetic Modeling of Alcohol Consumption.** G. Dimarco and G. Toscani. Journal of Statistical Physics Vol. 177, pp. 1022-1042, (2019).

22. **Asymptotically complexity diminishing schemes (ACDS) for kinetic equations in the diffusive scaling.** A. Crestetto, N. Crouseilles, G. Dimarco, M. Lemou. Journal of Computational Physics Vol. 394, pp. 243-262, (2019).

23. **Multi-scale control variate methods for uncertainty quantification in kinetic equations.** G. Dimarco, L. Pareschi. Journal of Computational Physics Vol. 388, pp. 63-89, (2019).

24. **A class of low dissipative schemes for solving kinetic equations.** G. Dimarco, C. Hauck, R. Loubère. Journal of Scientific Computing Vol. 78, pp. 393-432, (2019).

25. **Asymptotic Preserving Monte Carlo Methods for transport equations in the diffusive limit.** G. Dimarco, L. Pareschi and G. Samaey. SIAM Journal on Scientific Computing Vol. 40, pp. A504-A528, (2018).

26. **Second order Implicit-Explicit Total Variation Diminishing Schemes for the Euler system in the low Mach number regime**. G. Dimarco, V. Dansanc, R. Loubère and M.-H. Vignal. Journal of Computational Physics Vol. 372, pp. 178-201, (2018).

27. **An efficient numerical method for solving the Boltzmann equation in multidimensions**, G. Dimarco, R. Loubere, J. Narski and T. Rey. Journal of Computational Physics Vol. 353, pp. 46-81, (2018).

28. **Study of a new Asymptotic Preserving scheme for the Euler system in the low Mach number limit**, G. Dimarco, R. Loubère and M.-H. Vignal. SIAM Journal of Scientific Computing Vol. 39, pp. A2099-A2128, (2017).

29. **Are tumor cell lineages solely shaped by mechanical forces?** M. Leroy-Leretre, G. Dimarco, M. Cazales, M.L. Boizeau, B. Ducommun, V. Lobjois, P. Degond. Bulletin of Mathematical Biology Vol. 79, pp. 2356-2393, (2017).

30. **Implicit explicit linear multistep methods for stiff kinetic equations**, G. Dimarco and L. Pareschi. SIAM Journal of Numerical Analysis, Vol. 55, pp. 664-690, (2017).

31. **Asymptotic preserving and time diminishing schemes for rarefied gas dynamics**, N. Crouseilles, G. Dimarco and M. Lemou. Kinetic and Related Models, Vol. 10, pp. 643-668, (2017).

32. **Multiscale schemes for the BGK-Vlasov-Poisson system in the quasi-neutral and fluid limits. Stability analysis and first order schemes**, N. Crouseilles, G. Dimarco and M.-H. Vignal. SIAM Multiscale Modeling and Simulations, Vol.14, pp. 65-95, (2016).

33. **Self Alignement driven by jump processes: macroscopic limit and numerical investigation**, G. Dimarco and S. Motsch. Mathematical Models and Methods in Applied Sciences, Vol. 26, pp. 1385-1410. (2016).

34. **Numerical methods for plasma physics in collisional regimes**, G. Dimarco, Q. Li, B. Yan and L. Pareschi, Journal of Plasma Physics, pp. 305810106, (2015).

35. **Towards an ultra efficient kinetic scheme. Part III: High performance computing**, G. Dimarco, R. Loubere and J. Narski. Journal of Computational Physics, Vol 284, pp. 22-39, (2015).

36. **Macroscopic models of collective motion with repulsion**, P. Degond, G. Dimarco, T. B. N. Mac, N. Wang. Communications in Mathematical Sciences, Vol. 13, pp. 1615-1638, (2015).

37. **A multiscale fast semi-Lagrangian method for rarefied gas dynamics**, G. Dimarco, R. Loubere, V. Rispoli. Journal of Computational Physics, Vol. 291, pp. 99-119, (2015).

38. **Hydrodynamics of the Kuramoto-Vicsek model of rotating self-propelled particles.** P. Degond, G. Dimarco and T.B..N Mac, Mathematical Models and Methods in Applied Sciences Vol. 24, No. 02, pp. 277-325 (2014).

39. **Implicit-Explicit Runge-Kutta schemes for the Boltzmann-Poisson system for semiconductors.** G. Dimarco , L. Pareschi and V. Rispoli. Communications in Computational Physics Vol. 15, pp. 1291-1319 (2014).

40. **Numerical methods for kinetic equations.** G. Dimarco , L. Pareschi, Acta Numerica, Vol. 23, pp. 369-520 (2014).

41. **An asymptotic preserving automatic domain decomposition method for the Vlasov-Poisson-BGK system with applications to plasmas.** G. Dimarco, L. Mieussens and V. Rispoli, Journal of Computational Physics Vol. 274, pp. 122-139 (2014).

42. **The hybrid moment guided Monte Carlo method for the Boltzmann equation,** Dimarco, G., Kinetic and Related Models, Vol 6, pp. 291-315 (2013).

43. **Asymptotic preserving Implicit-Explicit Runge-Kutta methods for non linear kinetic equations**, Dimarco, G.; Pareschi, L., SIAM Journal of Numerical Analysis, Vol. 51, pp. 1064-1087 (2013) .

44. **Towards an ultra efficient kinetic scheme. Part I: basics on the BGK equation**, G. Dimarco, R. Loubere. Journal of Computational Physics, Vol. 255, pp. 680-698 (2013).

45. **Towards an ultra efficient kinetic scheme. Part II: The high order case.** G. Dimarco and R. Loubere. Journal of Computational Physics, Vol. 255, pp. 699-719 (2013).

46. **Fluid simulations with localized Boltzmann upscaling by Direct Simulation Monte-Carlo**, Degond, P., Dimarco, G., Journal of Computational Physics, Volume 231, Issue 6, 20 (2012), 2414–2437.

47. **High order asymptotic-preserving schemes for the Boltzmann equation**, Dimarco, G., Pareschi, L., Comptes Rendue Acad. Sci. Paris, Ser. I 350 (2012) 481-486.

48. **The Moment Guided Monte Carlo Method**. P. Degond, G. Dimarco, L. Pareschi. International Journal for Numerical Methods in Fluids, Vol.67, Issue 2, pp. 189-213 (2011).

49. **Exponential Runge-Kutta methods for stiff kinetic equations**. G. Dimarco, L. Pareschi. SIAM Journal of Numerical Analysis, Vol. 49, pp. 2057-2077 (2011).

50. **Fluid Solver Independent Hybrid Methods for Multiscale Kinetic equations**. G. Dimarco, L. Pareschi. SIAM Journal on Scientific Computing Vol. 32 issue 2, pp. 603-634 (2010).

51. **A Multiscale Kinetic-Fluid Solver With Dynamic Localization Of Kinetic Effects**. P. Degond, G. Dimarco, L. Mieussens. Journal of Computational Physics, Vol. 229, Issue 13, pp. 4907-4933 (2010).

52. **Direct simulation Monte Carlo schemes for Coulomb interactions in plasmas**. G. Dimarco, R. Caflisch, L. Pareschi. Communications in Applied and Industrial Mathematics, Vol. 1, Issue 1, pp. 72-91 (2010).

53. **Modelli e Metodi Numerici per Equazioni Iperboliche e Cinetiche Multiscala**. G. Dimarco. Bollettino dell'Unione Matematica Italiana: La Matematica nella Società e nella cultura, Vol.2, pp. 235-238 (2009) .

54. **A Hybrid Method for Accelerated Simulation of Coulomb Collisions in a Plasma**. R. Caflisch, C. Wang, G. Dimarco, B. Cohen and A. Dimits, SIAM Journal of Multiscale Modeling and Simulation Vol. 7, Issue 2, pp. 865-887 (2008).

55. **Hybrid Multiscale Methods II. Kinetic Equations.** G. Dimarco, L. Pareschi. SIAM Multiscale Modeling and Simulation Vol 6., No 4, pp. 1169-1197 (2007)

56. **A Moving Interface Method for Dynamic Kinetic-fluid Coupling**. P.Degond, G. Dimarco, L. Mieussens. Journal of Computational Physics Vol. 227, pp. 1176-1208, (2007).

57. **Hybrid Multiscale Methods I. Hyperbolic Relaxation Problems**. G. Dimarco, L. Pareschi, Communications in Mathematical Sciences, Vol 4, No. 1, pp.155-177, (2006).

Proceedings

58. **An Hybrid Method for the Boltzmann Equation**, R. Caflisch, G. Dimarco, L. Pareschi. AIP Proceedings 1786 of the 30th International Symposium on Rarefied Gas Dynamics: RGD 30, 1800001, (2016).

59. **Asymptotically implicit schemes for the hyperbolic heat equation**, G. Dimarco, L. Pareschi, V. Rispoli.i, Proceedings of the 14th International Conference on Hyperbolic problems: Theory, Numerics, Applications, AIMS series on applied mathematics, pp. 865-872 (2014).

60. **A smooth transition approach between the Vlasov-Poisson and the Euler-Poisson system**, G. Dimarco, L. Mieussens and V. Rispoli. Proceedings of the 21st International Conference on Domain Decomposition Methods. Domain Decomposition Methods in Science and Engineering XXI, Lecture Notes in Computational Science and Engineering 98, Springer-Verlag 2014.

61. **Hybrid Monte Carlo schemes for plasma simulations**, G.Dimarco, J. Narski. ICNAAM 2011. American Institute of Physics Conference Proceedings, 1389, pp. 1130–1133.

62. **Simulation of non equilibrium plasmas with a numerical noise reduced particle in cell method.** P. Degond, F. Deluzet, G. Dimarco, G. Gallice, P. Santagati and C. Tessieras. In Proceedings of the 27th International Symposium on Rarefied Gas Dynamics. Pacific Grove, California, AIP Conference Proceedings, Vol. 133, pp. 1112-1117 (2010).

63. **Domain Decomposition Techniques and Hybrid Multiscale Methods for Kinetic Equations**. G. Dimarco, L. Pareschi, Proceedings of the 11th International Conference on Hyperbolic problems: Theory, Numerics, Applications, pp. 457-464 (2007).

64. **A remark on the finite number of particles effect in Monte Carlo methods for kinetic equations**. G. Dimarco, P. Foscari, L. Pareschi. Proceedings of the 6th International Congress on Industrial and Applied Mathematics ICIAM07 Volume 7, Issue 1, pp. 1041003-1041004 (2007).

65. **Hybrid Simulation of Ion Acoustic Waves Including Coulomb Collisions**. R. Caflisch, G. Dimarco, Bruce Cohen, Andris Dimits, C.M. Wang, Yanghong Huang. 49th Annual Meeting of the Division of Plasma Physics, Novembre 12-16, 2007; Orlando, Florida, USA. Bulletin of the American Physical Society Vol 52, N 11.

66. **A Hybrid Monte Carlo Method for Coulomb Collisions**. R. Caflisch, G. Dimarco, Bruce Cohen, Andris Dimits, C.M. Wang, Yanghong Huang. 49th Annual Meeting of the Division of Plasma Physics, Novembre 12-16, 2007; Orlando, Florida, USA. Bulletin of the American Physical Society Vol 52, N 11.

67. **Simulation of sheath problems with an accelerated Monte Carlo method**. R. Caflisch, G. Dimarco, Bruce Cohen, Andris Dimits, C.M. Wang, Yanghong Huang, 49th Annual Meeting of the Division of Plasma Physics, Novembre 12-16, 2007; Orlando, Florida, USA. Bulletin of the American Physical Society Vol 52, N 11.

PhD Thesis

68. **Modeling and Numerical Methods for Multiscale Hyperbolic and Kinetic Equations**. G. Dimarco. Annali on line dell' Universitá di Ferrara Vol.I 2 (2007).