Prof. Damien VIOLEAU

http://www.webpage

Email : damien.violeau@edf.fr
Phone : +33-130-877-831

Education

- **Ecole des Ponts ParisTech** — Paris, France
  4th rank French engineering college — *Sep. 1992 – Jun. 1996*
- **Habilitation à Diriger des Recherches** — Univ. Toulon, France
  Physical Oceanography and Physics of the environment — *Oct. 2010*

Awards & Distinctions

- **Arthur T. Ippen Award** — 2015
  Delivered by IAHR
  "For outstanding contributions in the field of fluid mechanics with special emphasis on turbulence modeling for addressing complex, real-life hydraulics problems"
- **Student prizes**
  13 prizes have been delivered to my PhD students:
  - **M. Ferrand**: Libersky Prize winner, 2010
  - **A. Mayrofer**: 2nd and 3rd on the Libersky Prize contest, 2012 and 2013
  - **A. Leroy**: Twice Libersky Prize winner, 2013 and 2014; Prix Valembois, 2015
  - **A. Ghaïtanellis**: Libersky Prize winner, 2017
  - **R. Carmigniani**: 3rd on the Libersky Prize contest, 2017; PhD Award from Ecole des Ponts, 2018; 3rd on the Gehrard Jirka Prize contest, 2018
  - **T. Fonty**: Twice Libersky Prize winner, 2018 and 2019; Prix Valembois, 2020
- **Listed among the Top 2% World scientists in 2020** — [link]
  by a team of scientists at Stanford University

Experience

- **Electricité de France (EDF)** — https://www.edf.fr/en/meta-home
  Senior engineer — *May 1997 – Present*
  - **Smoothed Particle Hydrodynamics (SPH)**: Turbulence models, boundary conditions, numerical stability, time marching schemes, incompressibility, software development, multi-physics, real-world applications.
  - **Turbulence**: Explicit algebraic stress models, stochastic processes, passive and active scalar diffusion, numerical modelling.
  - **Water waves**: Spectral waves, dynamics of tsunamis, non-linear dispersive waves, channel waves.
  - **Design of water works**: Coastal dykes, dam spillways, scale models.
  - **Miscellaneous**: Coastal engineering, sediment transport, coastal flooding, climate change, oil spills, algal blooms, frazil ice, grid clogging, porous media, statistics of extreme events, etc.
  - **Project management**: Leader in several local, national and European projects.
  - **Team management**: Teams of *ca.* 10 people, young and experienced fellows.

- **Laboratoire d'Hydraulique Saint-Venant** http://stvenant.saezam.website/accueil
  Senior researcher *2006 – Present*
  - **Research activities**: SPH, turbulence, water waves.
  - **Supervising**: PhD and MSc students, post-doc fellows (see below).
- **The University of Manchester** Manchester, UK
  Marie Curie fellowship *2008 – 2011*
  - **SPH**: Team working within a European project, during 6 weeks per year.
- **Aérospatiale (now Airbus Group)** Suresnes, France
  Research engineer *Sep. 1995 – Jun. 1996*
  - **Electromagnetics**: Theoretical, experimental and numerical work on materials for stealth aircrafts.

Supervising and Jury membership

- **PhD students as main supervisor**
  - **Réza Issa (2002 – 2004)**: Numerical Assessment of the Smoothed Particle Hydrodynamics Gridless Method for Incompressible Flows and its Extension to Turbulent Flows
  - **Eun-Sug Lee (2004 – 2007)**: Truly Incompressible Approach for Computing Incompressible Flow in SPH and Comparisons with the Traditional Weakly Compressible Approach
  - **Antoine Joly (2008 – 2011)**: Turbulent Diffusion Modelling of Algal Bloom in Coastal Waters through a Stochastic Approach
  - **Arno Mayrhofer (2010 – 2013)**: An Investigation into Wall Boundary Conditions and Three-Dimensional Turbulent Flows using Smoothed Particle Hydrodynamics
  - **Agnès Leroy (2012 – 2014)**: A New Incompressible SPH Model: Towards Industrial Applications
  - **Marine Le Gal (2014 – 2017)**: Influence of Time Scales on the Dynamics of Seismic-Generated Tsunamis
  - **Alex Ghaïtanellis (2014 – 2017)**: Modeling Sediment Bed-Load Transport through a Granular Approach with SPH
  - **Rémi Carmigniani (2014 – 2017)**: Ocean Waves Rectifiers: Toward a Novel Way to Harvest Waves Energy
  - **Thomas Fonty (2016 – 2019)**: Modeling air entrainment in water with the SPH method
  - **Martin Ferrand (2017 – 2022)**: Free-surface flow simulations with a Lagrangian and an Arbitrary Lagrangian–Eulerian methods
  - **Antoine Villefer (2019 – present)**: Modelling combined swell and windwave sea-states
  - **Coline de Sousa (2021 – present)**: Modeling complex granular materials with SPH
  - **Bastien Jouy (2021 – present)**: Numerical modeling of Favre waves
- **PhD students as member of the supervising team**
  - **Jean-Christophe Marongiu (2004 – 2007)**: Méthode numérique lagrangienne pour la simulation d'éoulements à surface libre – Application aux turbines Pelton

- **Emmanuel Dombre (2012 – 2016)**: Non-Linear Modelling of Wave-Structure Interactions Applied to Offshore Wind Turbines
- **Ismaïl Rifai (2015 – 2018)**: Overtopping-Induced Fluvial Dike Failure
- **Roberto Frau (2015 – 2018)**: Using historical data in the regional analysis of extreme coastal events: the FAB method
- **Andreia Borges Moreira (2016 – 2020)**: Using GPUSPH for modelling spillway flows
- **Charlie Prétot (2020 – present)**: Improving performances of competition swimmers

- **Jury membership**
  Excluding supervised PhDs (see above)
  - **Habilitation à Diriger des Recherches**: Kamal El-Kadi Abderrezzak
  - **PhD defenses**: Julien Leduc, Matthieu De Leffe, Yohan Blacodon, Magdalena Neuhauser
  - **PhD reviewer**: Ashkan Rafiee, Jie Zhao, Laurent Chiron, Anthony Collé, Thomas Douillet-Grellier, Imadeddine Hammani, Alban Vergnaud
  - **Master of Philosophy**: Olivier Cozzi

- **Post-doc fellows**
  As main supervisor
  - **Eun-Sug Lee (2008 – 2009)**: Implementation of a 3D projection method in SPH
  - **Alexander Vorobyev (2012 – 2013)**: New developments in the GPUSPH software
  - **Arno Mayrhofer (2013 – 2016)**: Consolidation of the GPUSPH software
  - **Virginie Hergault (2014 – 2015)**: Eulerian–Lagrangian coupling
  - **Jérémie Chicheportiche (2015 – 2016)**: Eulerian–Lagrangian coupling
  - **Athanasios Mokos (2018 – 2021)**: SPH modelling of nuclear power plant flooding and dam spillway waterfalls
  - **Alex Ghaïtanellis (2018 – 2020)**: Sediment transport implementation in GPUSPH

- **Internship students**
  - ***ca.* 25 MSc students**: Six-months internships
  - **5 one-year research students**: Asven Gariah, Martin Ferrand, Omar Mahmood, Louise Fratter, Eki Agouzal
  - **Master of Philosophy**: Martin Ferrand (Univ. Manchester, 2009 – 2010)

Scientific communities

- **IAHR** 2003 – Present
  International Association for Hydro-environmental Research and Engineering
  - **Council member**: 2014 – 2015, 2018 – 2021
  - **Journal of hydraulic Research**: Associate Editor, 2015 – 2021
  - **Committee on Fluid Mechanics**: Member of the leading team, 2020 – Present
  - **Committee on IAHR publications**: Member of the leading team, 2020 – Present
  - **Innovation and Professional Development**: Vice-Chair, 2016 – 2019
  - **Maritime Hydraulics Section**: Secretary, 2006 – 2007

- **SPHERIC** 2005 – Present
  SPH rEsearch and engineeRing International Community
  - **Founder**: Oct. 2005
  - **Chairman**: Oct. 2005 – June 2010
  - **Steering Committee member**: 2005 – 2020
  - **Newsletter Editor**: 2005 – 2017
- **SHF** 2005 – Present
  Société Hydrotechnique de France
  - **Comité Scientifique et Technique**: Deputy member, 2010 – Present
  - **Section Hydraulique Maritime**: Chair, 2005 – 2014
  - **Comité Europe-International**: Member, 2010 – 2014
  - **La Houille Blanche (journal)**: Member of the Editoral Board, 2010 – 2014
- **ERCOFTAC** 2007 – 2010
  European Research Community on Flow, Turbulence And Combustion
  - **Scientific Programme Committee**: Member
- **Organisation of conferences**
  - **Chair**: 3 conferences (*ca.* 120 attendees)
  - **Organising Committee member**: 3 conferences (*ca.* 150 attendees)
  - **Scientific Committee member**: 20 conferences
  - **Special sessions in conferences**: 4 special sessions

Teaching and Dissemination

- **Professor, Ecole des Ponts ParisTech**
  4th rank French engineering college
  - **Mathematics for the engineer (2019 – Present)**: Head of the teaching team, 5 hrs/year
  - **SPH Method (2019 – Present)**: Head of the teaching team, 13 hrs/year
  - **Fluid Mechanics (2016 – Present)**: Head of the teaching team, 39 hrs/year
  - **Numerical hydraulics (2016 – 2017)**: Short course + scientific project, 5 hrs/year
  - **Fluid Mechanics (1999 – 2016)**: Lecturer, 39 hrs/year
  - **Fluid Mechanics (2009 – 2011)**: For students from Ecole Polytechnique, 5 hrs/year
  - **Continuous Media (1998 – 1999)**: Lecturer, 18 hrs/year
- **Other courses**
  On Fluid Mechanics
  - **Ecole Normale Supérieure de Paris-Saclay (2016 – Present)**: 30 hrs/year
  - **EDF R&D (2003 – Present)**: 9 hrs every 2 years
  - **The University of Manchester (2010 – 2014)**: SPH, 2 hrs/year
  - **Ecole des Ingénieurs de la Ville de Paris (2004 – 2010)**: 30 hrs/year

- **Others (occasional)**: Ecole Nationale Supérieure des Techniques Avancées, Centrale Supélec, Ecole Spéciale des travaux Publics

- **Invited/keynote Lectures**
  - **The use of SPH in environmental and industrial hydraulics**: Mathias 2016 conference, Paris, 26 Oct. 2016
  - **Smoothed Particle Hydrodynamics: towards complex flow**: General Assembly of French Hydro-Society, Paris, 9 Jun. 2016
  - **Smoothed Particle Hydrodynamics: towards accurate Lagrangian flow prediction**: 16th Conference on Modelling Fluid Flow, Budapest, Sep. 2015
  - **Smoothed Particle Hydrodynamics: a Lagrangian approach to hydraulics**: Arthur Thomas Ippen Lecture, 36th IAHR World Congress, The Hague, Jun. 2015
  - **Smoothed Particle Hydrodynamics: a synthetic model for real-life flows**: SPH and Particle Methods for Fluids and Fluid-Structure Interactions, Lille, Jan. 2015
  - **Smoothed Particle Hydrodynamics: Fresh insights in CFD**: 3rd SimHydro conference, Nice, Jun. 2014
  - **Smoothed Particle Hydrodynamics: From theory to real-life applications**: 1st Sino-French Forum on Water Science, Shanghaï Jiao Tong University, Sep. 2013
  - **Numerical stability of SPH for weakly compressible viscous flows: Optimal time-stepping**: 8th SPHERIC International Workshop, Trondheim, Jun. 2013

- **Seminars**
  - **The Korteweg–de Vries equation and the Dynamics of undular bores**: Master Class, 39th IAHR World Congress, Granada, Jun. 2022
  - **Turbulence modeling with SPH: Challenges and Opportunities**: SPH Online II webinar, Mar. 2021 – Best presentation award
  - **Nonlinear dispersive waves: A journey around the Korteweg–de Vries equation**: EDF R&D, Oct. 2020
  - **Latest advances in the SPH method at EDF & LHSV**: Beuth Hochschule für Technik Berlin, Apr. 2019
  - **How to write a good paper**: 5th IAHR Europ. Conf., Trento, Jun. 2018
  - **SPH: Fundamentals and use in hydraulics at EDF**: Safran workshop on LBM and SPH, Paris, Sep. 2017
  - **SPH: a comprehensive Lagrangian approach for continuous media**: Schlumberger Fluid Mechanics SIG webinar, USA, Nov. 2016)
  - **Smoothed Particle Hydrodynamics : une méthode lagrangienne pour modéliser les fluides**: Ecole des Ponts ParisTech, Paris, Oct. 2014
  - **SPHERIC Grand Challenges and SPH numerical stability**: UK Meshless Methods Network, Manchester, Oct. 2013
  - **SPH for industrial purposes: are we ready for quantitative predictions?**: Conservatoire National des Arts et Métiers, Paris, Jun. 2011
  - **Introduction to SPH**: Training day of the 5th SPHERIC International Workshop, Manchester, Jun. 2010
  - **Smoothed Particle Hydrodynamics: Variational viewpoint and turbulence**: The University of Manchester, Jun. 2009

- **Smoothed Particle Hydrodynamics for turbulence and applications to environmental flow**: Hamburg University of Technology, Feb. 2008
- **SPH numerical method and its applications in hydraulics of multiphase flows**: Ecole Normale Supérieure de Cachan, Mar. 2007
- **The SPH Lagrangian numerical method**: Université Henri Poincaré, Nancy, Jan. 2006
- **The Telemac system: An integrated tool for environmental CFD**: Technische Universiteit Delft, Sep. 2004
- **The mathematical and numerical modelling of dam breaks and river floods**: ParisTech College, May 2004
- **The numerical modelling of environmental flows**: University of Manchester Institute of Science and Technology, Jun. 2002

- **Summerschools**
  - **TANDEM tsunami school, Inria Bordeaux, Apr. 2016**: "Tsunami impact on the coast: General aspects and simulation tools" and "Tsunami coastal impact: The use of the SPH method"
  - **CEA-EDF-INRIA summerschool on Particle Transport, Numerical Methods and Applications, Paris, Jun. 2009**: "Smoothed Particle Hydrodynamics (SPH): A 'Physical' Lagrangian numerical method for fluid simulation and continuous media" and "SPH: Applications to complex flows for industry and the environment"
  - **Ecole Centrale de Lyon, Jul. 2005**: "Mechanical basis of the SPH method" and "The modelling of turbulent flows with SPH"
  - **International Summerschool on Environmental Turbulence and CFD, Escola Universitària Politècnica de Vilanova i la Geltrú, Sep. 2004**: "Introduction to Lagrangian Mechanics and the SPH numerical method" and "The Telemac system: An integrated tool for environmental CFD"

Publications

- **Summary**
  3485 citations (1981 since 2017), h-index = 24, i10-index = 48 *Feb. 2022*
  - **3 books and 1 monograph**
  - **2 book chapters**
  - **58 journal papers**
  - **104 conference papers**
  - **26 contributions to bulletins and colloquium papers**
  - **5 proceedings and journal special issues as an editor**
  - **56 engineering and research reports for EDF**

- **Books, Monographs and Book chapters**
  - **Violeau, D.**, The Mathematics of Undular Bores – A Journey around the Korteweg–de Vries Equation, *IAHR mongraph, under review.*
  - **Violeau, D.**, Fluid Mechanics and the SPH Method, *Oxford University Press*, Oxford, 2012, 594 p.
  - **Violeau, D.** *et al.*, Hydraulics for Engineers, *in preparation.*

- Ginocchio, R., Viollet, P.-L., L'Energie Hydraulique, *Lavoisier*, Paris, 2012, 632 p. Participation to the 2nd edition (in French).
- Viollet, P.-L., Benhamadouche, S., Benoit, M., Chabard, J.-P., **Violeau, D.**, Problèmes Résolus de Mécanique des Fluides avec Rappels de Cours, *Presses des Ponts*, Paris, 2010, 392 p. (in French).
- Issa, R. , **Violeau, D.**, Lee, E.-S., Flament, H., Modelling nonlinear water waves with RANS and LES SPH models, *in* Advances in Numerical Simulation of Nonlinear Water Waves, edited by Q.W. Ma, Series of Advances in Coastal and Ocean Engineering, Vol. 11, 2010, *World Scientific Publishing Co.*

- **Journal papers**
  - Mokos, A., **Violeau, D.**, De Leffe, M., Sarret, F. (2022), *SPH modeling of gravity fall of a water sheet*, J. Hydr. Res. **in press**:–.
  - Villefer, A., **Violeau, D.**, Benoit, M., Luneau, C., Branger, H. (2021), *Influence of following, regular and irregular long waves on wind-wave growth with fetch: An experimental study*, J. Phys. Oceanogr. **doi.org/10.1175/JPO-D-21-0050.1**:–.
  - Ghaïtanellis, A., **Violeau, D.**, Liu, P.L.-F., Viard, T. (2021), *SPH simulation of the 2007 Chehalis Lake landslide and subsequent tsunami*, J. Hydr. Res. **59**:863–887.
  - Moreira, A., **Violeau, D.**, Taveira-Pinto, F. (?), *Single-phase SPH modelling of plunge pool dynamic pressures at a near-prototype scale*, J. Hydr. Res. **59**:888–902.
  - **Violeau, D.** (2021), *Cosmogenic tsunami risk assessment: a first application to the European Atlantic coasts*, Nat. Haz. **105**:735–753.
  - El Kadi Abderrezzak, Rifai, I., Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., Dewals, B. (2020), *Continuous monitoring of fluvial dike breaching by a Laser Profilometry Technique*, Water Resources Res. **56**:1–16.
  - Fonty, T., Ferrand, M. Leroy, A., **Violeau, D.** (2020), *Air entrainment modeling in the SPH method: a two-phase mixture formulation with open boundaries*, Flow, Turbulence and Combustion **105**:1149–1195.
  - Mokos, A., Leroy, A., Carmigniani, R., **Violeau, D.** (2020), *Simulating wave overtopping on a complex dike structure using SPH*, J. Appl. Water Engng. Res. **8**:55–65.
  - Rifai, I., El Kadi Abderrezzak, Hager, W., Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., Dewals, B. (2020), *Apparent cohesion effects on overtopping-induced fluvial dike breaching*, J. Hydr. Res. (in press) **59**:75–87.
  - **Violeau, D.**, Fonty, T. (2019), *Calculating the smoothing error in SPH*, Comput. & Fluids **191**:104240–.
  - Rifai, I., El Kadi Abderrezzak, Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., Dewals, B. (2019), *Flow and detailed 3D morphodynamic data from laboratory experiments of fluvial dike breaching*, Science Data **6**:1–11.
  - Moreira, A., **Violeau, D.**, Leroy, A., Taveira-Pinto, F. (2019), *Overview of Large-Scale Smoothed Particle Hydrodynamics Modeling of Dam Hydraulics*, J. Hydr. Engng. **146**:03119001–.
  - Carmigniani, R., Leroy, A., **Violeau, D.** (2019), *A simple SPH model of a free surface water wave pump: Waves above a submerged plate*, Coast. Engng. J. **61**:96–108.
  - Fonty, T., Leroy, A., Joly, A., **Violeau, D.**, Ferrand, M. (2019), *Mixture model for two-phase flows with high density ratios: A conservative and realizable SPH formulation*, Int. J. Multiphase Flows **111**:158–174.

- Moreira, A., **Violeau, D.**, Leroy, A., Taveira-Pinto, F. (2019), *Dam spillways and the SPH method: two case studies in Portugal*, J. Appl. Water Engng. Res. **7**:228–245.
- Rifai, I., El Kadi Abderrezzak, K., Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., Dewals, B. (2018), *Floodplain backwater effect on overtopping induced fluvial dike failure*, Water Resources Res. **54**:9060–9073.
- Dombre, E., Harris, J.C., Benoit, M., **Violeau, D.**, Peyrard, C. (2018), *A parallel BEM solver on unstructured triangular grids for fully nonlinear wave-body interactions*, Ocean Engng. **171**:505–518.
- Carmigniani, R., **Violeau, D.** (2018), *Optimal sponge layer for water waves numerical models*, Ocean Engng. **163**:169–182.
- Le Gal, M., **Violeau, D.**, Ata, R., Wang, X. (2018), *Shallow Water Numerical models for the 1947 Gisborne and 2011 Tohoku-Oki tsunamis with kinematic seismic generation*, Coast. Engng. **139**:1–15.
- **Violeau, D.**, Hérault, A., Leroy, A., Joly, A. (2018), *Spectral properties of the SPH Laplacian operator*, Comput. Math. Appl. **75**:3649–3662.
- Ghaïtanellis, A., **Violeau, D.**, El Kadi Abderrezzak, K., Leroy, A., Joly, A., Ferrand, M. (2018), *A SPH elastic-viscoplastic model for granular flows and bed-load transport*, Adv. Water Res. **111**:156–173.
- Rifai, I., Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., El Kadi Abderrezzak, K., Dewals, B. (2017), *Overtopping induced failure of non-cohesive, homogeneous fluvial dikes*, Water Resources Res. **53**:3373–3386.
- **Violeau, D.** (2017), *A comprehensive presentation of the turbulent plane jet theory with passive scalar*, Math. Probl. Engng. **2017**:4369895–.
- Le Gal, M., **Violeau, D.**, Benoit, M. (2017), *Influence of timescales on the generation of seismic tsunamis*, Eur. J. Mech. B/Fluids **65**:257–273.
- Rifai, I., Erpicum, S., Archambeau, P., **Violeau, D.**, Pirotton, M., El Kadi Abderrezzak, K., Dewals, B. (2016), *Discussion: Laboratory study on 3D flow structures induced by zero-height side weir and implications for 1D modeling*, J. Hydr. Engng. **143**:07016010–.
- Leroy, A., **Violeau, D.**, Ferrand, M., Fratter, L., Joly, A. (2016), *A new open boundary formulation for incompressible SPH*, Comput. Math. with Appl. **72**:2417–2432.
- Carmigniani, R.A., Benoit, M., **Violeau, D.**, Gharib, M. (2016), *Resonance wave pumping with surface waves*, J. Fluid Mech. **811**:1–36.
- **Violeau, D.**, Rogers, B.D. (2016), *SPH for free-surface flows: Past, present and future*, J. Hydr. Res. **54**:1–26.
- **Violeau, D.** (2016), *Discussion: On analytical formulae for navigation lock filling—emptying and overtravel*, J. Hydr. Res. **54**:224–225.
- Ferrand, M., Joly, A., Kassiotis, C., **Violeau, D.**, Leroy, A., Morel, F.-X., Rogers, B.D. (2016), *Unsteady open boundaries for SPH using semi-analytical conditions and Riemann solver in 2D*, Comput. Phys. Comm. **210**:29–44.
- **Violeau, D.**, Leroy, A. (2015), *Optimal time step for Incompressible SPH*, J. Comput Phys. **288**:119–130.
- Leroy, A., **Violeau, D.**, Ferrand, M., Joly, A. (2015), *Buoyancy modelling with incompressible SPH for laminar and turbulent flows*, Int. J. Num. Meth. Fluids **78**:455–474.

- Mayrhofer, A., Laurence, D., Rogers, B.D., **Violeau, D.** (2015), *Simulation of 3-D wall-bounded turbulence using Smoothed Particle Hydrodynamics*, Comput. & Fluids **115**:86–97.
- Dombre, E., Benoit, M., **Violeau, D.**, Peyrard, C., Grilli, S.T. (2015), *Simulation of floating structure dynamics in waves by implicit coupling of a fully nonlinear potential flow model and a rigid body motion approach*, J. Ocean Engng. Marine Energy **1**:55–76.
- Leroy, A., **Violeau, D.**, Ferrand, M., Kassiotis, C. (2014), *Unified semi-analytical wall boundary conditions for 2-D incompressible SPH*, J. Comput. Phys. **261**:106–129.
- Mayrhofer, A., Ferrand, M., Kassiotis, C., **Violeau, D.** (2014), *Unified semi-analytical wall boundary conditions in SPH: Analytical extension to 3-D*, Num. Alg. **68**:15–34.
- **Violeau, D.**, Leroy, A. (2014), *On the maximum time step in weakly compressible SPH*, J. Comput. Phys. **256**:388–415.
- Mayrhofer, A., Rogers, B.D., **Violeau, D.**, Ferrand, M. (2013), *Investigation of wall bounded flows using SPH and the unified semi-analytical wall boundary conditions*, Comput. Phys. Com. **184**:2515–2527.
- Ferrand, M., **Violeau, D.** (2012), *A family of explicit algebraic models for Reynolds stresses and passive scalar fluxes*, J. Hydr. Res. **50**:494–505.
- Joly, A., **Violeau, D.**, Moulin, F., Astruc, D., Kassiotis, C. (2012), *Transport of isotropic particles in a partially obstructed channel flow: experiments and numerical modelling*, J. Hydr. Res. **50**:324–337.
- Joly, A., Moulin, F., **Violeau, D.**, Astruc, D., Minier, J.-P. (2012), *Diffusion of isotropic macro-particles using a stochastic method: theory and validation against experimental results in grid turbulence*, Phys. Fluids **24**:103303–.
- Ferrand, M., Laurence, D., Rogers, B., **Violeau, D.**, Kassiotis, C. (2012), *Unified semi-analytical wall boundary conditions for inviscid, laminar or turbulent flows in the meshless SPH method*, Int. J. Num. Meth. Fluids **71**:446–472.
- Joly, A., Moulin, F., Cazin, S., Astruc, D., **Violeau, D.** (2011), *Experimental measurements of macro-particle dispersion in grid turbulence and stochastic numerical modeling*, Comput. Meth. Multiphase Flow **4**:107–116.
- Luck, M., Lee, E.-S., Méchitoua, N., **Violeau, D.**, Laugier, F., Blancher, B., Valette, E., Guyot, G. (2010), *Modélisations physique et numérique 3D pour l'évaluation de la débitance et le design des évacuateurs de crue*, La Houille Blanche **6**:74–82.
- Issa, R., Rougé, D., Benoit, M., **Violeau, D.**, Joly, A. (2010), *Modelling algae transport in coastal areas with the shallow water equations*, J. Hydro-Environment Res. **3**:215–223.
- Lee, E.-S., **Violeau, D.**, Issa, R., Ploix, S. (2010), *Application of weakly compressible and truly incompressible SPH to 3-D water collapse in waterworks*, J. Hydr. Res. **48**:50–60.
- **Violeau, D.** (2009), *Dissipative forces for Lagrangian models in computational fluid dynamics and application to smoothed-particle hydrodynamics*, Phys. Rev. E **80**:036705–.
- **Violeau, D.** (2009), *Explicit algebraic Reynolds stresses and scalar fluxes for density-stratified shear flows*, Phys. Fluids **21**:035103–.
- Issa, R., **Violeau, D.** (2009), *Modelling a plunging breaking solitary wave with eddy-viscosity turbulent SPH models*, Comput., Materials and Continua **8**:151–164.
- Lee, E.-S., Moulinec, C., Xu, R., **Violeau, D.**, Laurence, D., Stansby, P. (2008), *Comparisons of weakly compressible and truly incompressible SPH algorithms for 2D flows*, J. Comput. Phys. **227**:8417–8436.

- Moulinec, C., Issa, R., Marongiu, J.-C., **Violeau, D.** (2008), *Parallel 3-D SPH simulations*, Comput. Model. Engng. Sc. **25**:133–148.
- **Violeau, D.**, Lafon, F., Boulet, T., Benoit, M., Goasguen, G. (2008), *Projet DISCOBOLE. Impact du changement climatique sur les aménagements côtiers*, La Houille Blanche **1**:50–60.
- **Violeau, D.**, Buvat, C., Abed-Meraïm, K., de Nanteuil, E. (2007), *Numerical modelling of boom and oil spill with SPH*, Coastal Engng. **54**:895–913.
- **Violeau, D.**, Buvat, C. (2007), *Lagrangian numerical modelling of boom and oil spill*, La Houille Blanche **5**:80–84.
- **Violeau, D.**, Issa, R. (2006), *Numerical modelling of complex turbulent free surface flows with the SPH Lagrangian method: An overview*, Int. J. Num. Meth. Fluids **53**:277–304.
- Issa, R., Lee, E-S., **Violeau, D.**, Laurence, D. (2004), *Incompressible separated flows simulations with the Smoothed Particle Hydrodynamics gridless method*, Int. J. Num. Meth. Fluids **47**:1101–1106.
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