Publication list of Doris Folini

I. Refereed Papers (regular journals, conference papers)

Circum-stellar medium around rotating massive stars at solar metallicity. C. Georgy, R. Walder, D. Folini et al. *Astronomy & Astrophysics*, submitted.

Influence of tropical tropopause layer cooling on Atlantic hurricane activity. K. Emanuel, S. Solomon, D. Folini et al. *J. of Clim.*, in press.

Enhanced central European summer precipitation in the late 19th century: a link to the Tropics. A. Bichet, D. Folini, M. Wild, C. Schär, *QJRMS*, in press.

Feature-based validation of Northern Hemisphere tropopause level Rossby wave breaking in the ECHAM5-HAM climate model. A. Béguin, O. Martius, M. Sprenger et al. *Int. J. of Clim.*, in press.

Massive stars, Magnetic fields, Dynamos, Fossil field, Stellar evolution, Binaries, Colliding winds, Non-thermal emission. R.Walder, D. Folini, G. Meynet, *Space Science Reviews*, 166, 145–185, 2012.

The global energy balance from a surface perspective. M. Wild, D. Folini, C. Schär et al. *Clim. Dyn.*, 323–350, 2012.

Simulating the Circum-stellar Environment of Supernova and GRB Progenitors by Combining Stellar Evolution Models and Hydrodynamical Code. C. Georgy, R. Walder, D. Folini, *PASP Conference Series*, 453, 75–78, 2012.

Causes for decadal variations of wind speed over land: Sensitivity studies with a global climate model. A. Bichet, M. Wild, D. Folini, C. Schär, *Geophys. Res. Lett.*, 39, 11701–11706, 2012.

Impact of Greenland's topographic height on precipitation and snow accumulation in idealized simulations M. Z. Hakuba, D. Folini, M. Wild, C. Schär, *J. Geophys. Res.*, 117, 9107–9121, 2012.

Decadal variation of surface solar radiation in the Tibetan Plateau from observations, reanalysis and model simulations. Q. You, A. Sanchez-Lorenzo, M. Wild et al. *Clim. Dyn.*, 94–103, 2012.

A novel approach to climate reconstructions using Ensemble Kalman Filtering. J. Bhend, J. Franke, D. Folini et al. *Climate of the Past*, 8, 963–976, 2012.

Aerosol emissions and dimming/brightening in Europe: Sensitivity studies with ECHAM5-HAM. D. Folini, M. Wild *J. Geophys. Res.*, 116, 21104–21128, 2011.

Simulation of dimming and brightening in Europe from 1958 to 2001 using a regional climate model. E. M. Zubler, D. Folini, U. Lohmann et al. *J. Geophys. Res.*, 116, 18205–18217, 2011.

Global precipitation response to changing forcings since 1870. A. Bichet, M. Wild, D. Folini, C. Schär, *Atmos. Chem. Phys.*, 11, 9961-9970, 2011.

Implementation and evaluation of aerosol and cloud microphysics in a regional climate model. E. M. Zubler, D. Folini, U. Lohmann et al. *J. Geophys. Res.*, 116, 2211–2228, 2011.

Supersonically turbulent, shock bound interaction zones. R. Walder, D. Folini, J. M. Favre, *PASP Conference Series*, 429, 9–14, 2010.

Recurrent novae: progenitors of SN Ia? R. Walder, D. Folini, J. M. Favre, S. N. Shore, *PASP Conference Series*, 429, 173–178, 2010.

Effect of phosphate, silicate, and Ca on the morphology, structure and elemental composition of Fe(III) precipitates formed in aerated Fe(II) and As(III) containing water. R. Kaegi, A. Voegelin, D. Folini, S. J. Hug, *Geochimica et Cosmochimica Acta*, 74, 5798–5816, 2010.

Assessment of parameters describing representativeness of air quality in-situ measurement sites. S. Henne, D. Brunner, D. Folini, S. Solberg, J. Klausen, B. Buchmann, *Atmos. Chem. Phys.*, 10, 3561–3581, 2010.

The different progenitors of type Ib, Ic SNe, and of GRB C. Georgy, G. Meynet, R. Walder, D. Folini, A. Maeder, *Astronomy & Astrophysics*, 511, 611–622, 2009.

Region of influence of 13 remote European measurement sites based on modeled carbon monoxide mixing ratios. D. Folini, P. Kaufmann, S. Ubl, S. Henne, *J. Geophys. Res.*, 114, 8307–8318, 2009.

Lagrangian particle dispersion modeling for the high-Alpine site Jungfraujoch. D. Folini, S. Ubl, P. Kaufmann, *J. Geophys. Res.*, 113, 18111–18119, 2008.

3D simulations of RS Oph: from accretion to nova blast. R. Walder, D. Folini, S. Shore, *Astronomy & Astrophysics*, 484, L9–L12, 2008.

Measurements of organic trace gases including oxygenated volatile organic compounds at the high alpine site Jungfraujoch (Switzerland): Seasonal variation and source allocations. G. Legreid, D. Folini, J. Staehelin et al., *J. Geophys. Res.*, 113, D05307, 2008.

Observations of long-lived anthropogenic halocarbons at the high-Alpine site of Jungfraujoch (Switzerland) for assessement of trends and European sources. S. Reimann, M. K. Vollmer, D. Folini et al., *Sci. Tot. Env.*, 391, 2-3, 224-231, 2008.

The phase-in and phase-out of European emissions of HCFC-141b and HCFC-142b under the Montreal protocol: evidence from observations at Mace Head, Ireland and Jungfraujoch, Switzerland from 1994-2004, R. G. Derwent, P. G. Simmonds, B. R. Greally et al. *Atmos. Environ.*, 41, 4, 757-767, 2007.

SCIAMACHY tropospheric NO_2 over the Alpine region and importance of pixel surface pressure for the column retrieval, D. Schaub, D. Brunner, F. K. Boersma et al., *Atmos. Chem. Phys.*, 7, 5971–5987, 2007.

Observations of 1,1-difluoroethane (HFC-152a) at AGAGE and SOGE monitoring stations 1994-2004 and derived global and regional emission estimates, B. R. Greally, A. J. Manning, S. Reimann et al., *J. Geophys. Res.*, 112, D6, D06308, 2007.

European emissions of HFC-365mfc, a chlorine free substitute for the foam blowing agents HCFC-141b and CFC-11, K. Stemmler, D. Folini, S. Ubl et al., *Environmental Science & Technology*, 41, 4, 1145–1151, 2007.

Colloid formation in aerated FE(II) containing water: Effect of phosphate, silicate and Ca on morphology and structure, R. Kaegi, A. Voegelin, D. Folini et al., *Geochimica et Cosmochimica Acta, Suppl. Ser.*, 71, 15, A456++, 2007.

Compressible turbulence in shock bound interaction zones I: symmetric settings, D. Folini and R. Walder. *Astronomy & Astrophysics*, 459, 1–19, 2006.

First appearance and rapid growth of anthropogenic HFC-245fa ($CHF_2CH_2CF_3$) in the atmosphere, M. Vollmer, S. Reimann, D. Folini et al., *Geophys. Res. Lett.*, 33, L20806, 2006.

Comparison of GOME tropospheric NO_2 columns with NO_2 profiles deduced from ground-based in situ measurements, D. Schaub, F. K. Boersma, J. W. Kaiser et al., *Atmos. Chem. Phys.*, 6, 3211–3229, 2006.

Low European methyl chloroform emissions inferred from long-term measurements at Mace Head and Jungfraujoch, S. Reimann, A. J. Manning, P. J. Simmonds et al., *Nature*, 433: 506–508, 2005.

Structuring and support of molecular clouds by Alfvén waves, D. Folini, J. Heyvaerts, and R. Walder. *Astronomy & Astrophysics*, 414: 559–572, 2004.

Halogenated greenhouse gases at the Swiss High Alpine Site of Jungfraujoch (3580 m asl): Continuous measurements and their use for regional European source allocation, S. Reimann, D. Schaub, K. Stemmler et al. *J. Geophys. Res.*, 109, D5, D05307, 2004.

A wind accretion wake in RW Hydrae?, T. Dumm, D. Folini, H. Nussbaumer, H. Schild, W. Schmutz., and R. Walder *Astronomy & Astrophysics*, 354:1014–1020, 2000.

3D hydrodynamical simulations of colliding wind binaries: theory confronts observations, D. Folini and R. Walder. *Astrophysics & Space Science*, 274/1-2:189–194, 2000.

On the stability of colliding flows: radiative shocks, thin shells, and supersonic turbulence, R. Walder and D. Folini. *Astrophysics & Space Science*, 274/1-2:343–352, 2000.

3D radiative transfer under conditions of non local thermodynamic equilibrium: A contribution to the numerical solution, D. Folini and R. Walder. In M. Fey and R. Jeltsch, eds., *Hyperbolic Problems: Theory, Numerics, Applications.*, Int. Ser. Num. Math., 129, 305–314. Birkhäuser, 1999.

Radiative shocks, supersonic turbulence and structure formation in space, R. Walder and D. Folini. In M. Fey and R. Jeltsch, eds., *Hyperbolic Problems: Theory, Numerics, Applications.*, Int. Ser. Num. Math., 130, 973–982. Birkhäuser, 1999.

Knots, filaments, and turbulence in radiative shocks, R. Walder and D. Folini. *Astronomy & Astrophysics*, 330:L21–L24, 1998.

Radiative cooling instability in 1D colliding flows, R. Walder and D. Folini. *Astronomy & Astrophysics*, 315:265–284, 1996.

Structure and stability of radiative shock waves, D. Folini and R. Walder. In J. Glimm, M. J. Graham, J. W. Grove, and B. J. Plohr, eds., *Hyperbolic Problems: Theory, Numerics, Applications. Fifth International Conference in Stony Brook*, pages 313–319, 1996.

II. Invited conference papers and reviews

3D-hydrodynamics of colliding winds in massive binaries, R. Walder. and D. Folini. In *IAU Symposium No. 212*, 139–146, 2003.

Theoretical consideration on colliding clumped winds, R. Walder and D. Folini. In T. Moffat and N. St-Louis, eds., *Interacting Winds from Massive Stars*, PASP Conference Series, 260, pages 595–603, 2002.

Theory of thermal and ionization effects in colliding winds of WR+O binaries, D. Folini and R. Walder. In Henny J.G.L.M. Lamers and Arved Sapar, eds., *Thermal and Ionization Aspects of Flows from Hot Stars*, ASP Conference Series 204, pages 267–278, 2000.

Complex wind dynamics and ionization structure in symbiotic binaries, R. Walder and D. Folini. In Henny J.G.L.M. Lamers and Arved Sapar, eds., *Thermal and Ionization Aspects of Flows from Hot Stars*, ASP Conference Series 204, pages 331–342, 2000.

Colliding winds in WR binaries: further developments within a complicated story, R. Walder, D. Folini, and S. Motamen. In K.A. van der Hucht, G. Koenigsberger, and P.R.J. Eenens, eds., *Wolf-Rayet Phenomena in Massive Stars and Starburst Galaxies, Proc. IAU Symposium No. 193*, pages 298–305, 1999.

The formation of knots and filaments in shocks, R. Walder and D. Folini. Workshop on Hypersonic Radiative Outflows out of Thermal Equilibrium, Mt. St. Odile, France. *Astrophysics & Space Science*, 260:215–224, 1999.

III. Software: the A-MAZE code package (1999)

- a 3D adaptive mesh MHD-code
- a 3D optically thick NLTE radiative transfer code for moving media
- a 3D adaptive mesh optically thin NLTE radiative transfer code for moving media
- Scripts governing automatic code and data-handling
- High-end graphics for 3D multi-block adaptive grid data

The codes are available at http://www.astro.phys.ethz.ch/staff/folini/
A-MAZE+, parallelized and including self-gravity and generalized adaptive meshes, is under development.

IV. Contributed conference papers

Supersonic turbulence as an agent for structure formation in space. D. Folini, R. Walder, R.J. LeVeque, J. Favre. *Proceedings in Applied Mathematics and Mechanics*, 2007.

Astrophysical simulations as virtual labs, H.Couchman, D. Folini, G. Lake, W. Petersen. *SIAM News Letter*, 5, 2007.

Modeling passive tracer transport to the high Alpine site Jungfraujoch, D. Folini, S. Ubl, P. Kaufmann. *Urban Air Quality*, 2007.

HFC-365mfc: European emission estimates for a new foam blowing agent, D. Folini, K. Stemmler, S. Reimann, S. Ubl. *European Geophysical Union*, 2005.

Residence Time maps for inverse modeling in complex terrain, S. Ubl, D. Folini, and P. Kaufmann. *American Geophysical Union*, 2004.

Observations of chloroform ($CHCl_3$)-depleted air masses at the Jungfraujoch high-altitude observatory, M. K. Vollmer, S. Reimann, K. Stemmler, D. Schaub, and D. Folini. *American Geophysical Union*, 2004.

Halogenated greenhouse gases: trends, emission estimates, and regional source allocation from continuous measurements at Jungfraujoch, D. Folini, S. Reimann, D. Schaub, K. Stemmler, M. Hill, and B. Buchmann. *European Geophysical Union*, 2004.

A new method for 3D radiative transfer with adaptive grids, D. Folini, R. Walder., M. Psarros, and A. DesBoeufs. In *Stellar atmosphere modeling*, ASP Conference Proceedings, 288, 433–437, 2003.

Theoretical predictions for the cold part of the colliding wind interaction zone, D. Folini and R. Walder. In T. Moffat and N. St-Louis, eds., *Interacting Winds from Massive Stars*, PASP Conference Series, 260, 605–614, 2002.

A-MAZE: A code package to compute 3D magnetic flows, 3D NLTE radiative transfer, and synthetic spectra, R. Walder and D. Folini. In Henny J.G.L.M. Lamers and Arved Sapar, eds., *Thermal and Ionization Aspects of Flows from Hot Stars*, ASP Conference Series 204, pages 281–284, 2000.

3D NLTE radiative transfer: A new code and its application to γ-Vel, D. Folini and R. Walder. In K.A. van der Hucht, G. Koenigsberger, and P.R.J. Eenens, eds., *Wolf-Rayet Phenomena in Massive Stars and Starburst Galaxies, Proc. IAU Symposium No. 193*, pages 352–353, 1999.

Heat conduction and colliding winds in WR binaries, S. M. Motamen, R. Walder, and D. Folini. In K.A. van der Hucht, G. Koenigsberger, and P.R.J. Eenens, eds., *Wolf-Rayet Phenomena in Massive Stars and Starburst Galaxies, Proc. IAU Symposium No. 193*, pages 378–379, 1999.

Visualization of astrophysical data with AVS/Express, J. Favre, R. Walder, and D. Folini. In *40th Cray User Group Conference, Stuttgart, Germany, June 15-19, 1998.*, 1998.

Radiative shocks and structure formation in space, R. Walder and D. Folini. *Helvetica Physica Acta*, 71 Suppl. 1:27–28, 1998.

Orbital and stellar parameters of BX Mon, T. Dumm, D. Folini, U. Mürset, H. Nussbaumer, H.Schild, H. M Schmid, W. Schmutz, S. Shore, and R. Walder. In J. Mikolajewska, editor, *Physical processes in symbiotic binaries and related objects*. Copernicus Foundation for Polish Astronomy, 1997.

HST observations of RW Hydrae, with W. Schmutz, T. Dumm, D. Folini, U. Mürset, H. Nussbaumer, H.Schild, H. M Schmid, S. Shore, and R. Walder. In J. Mikolajewska, editor, *Physical processes in symbiotic binaries and related objects*. Copernicus Foundation for Polish Astronomy, 1997.

Instabilities of colliding flows and the consequences for planetary nebulae, D. Folini and R. Walder. In A. Harpaz and N. Soker, eds., *Asymmetrical Planetary Nebulae*, volume 11 of the *Annals of the Israel physical society*, pages 253–257, 1995.

Instabilities in colliding winds, R. Walder and D. Folini. In K.A. van der Hucht and P.M. Williams, eds., *WR Stars: Binaries, Colliding Winds, Evolution, IAU Symposium No. 163*, pages 525–526, 1995.