

# Publication List

## — Thomas Buchert

Date : September 2011    ADS Citations : Total : 2730 ; Per Author : 1700    H-INDEX : H=30

### Peer-reviewed Articles

1. Buchert T., Götz G. : ‘A class of solutions for self-gravitating dust in Newtonian gravity’,  
*J. Math. Phys.* **28**, 2714-2719 (1987).
2. Buchert T. : ‘A class of solutions in Newtonian cosmology and the pancake theory’,  
*Astron. Astrophys.* **223**, 9-24 (1989).
3. Mo H.J., Buchert T. : ‘A statistical discriminator among galaxy samples of different large-scale topology and geometry’,  
*Astron. Astrophys.* **234**, 5-19 (1990).
4. Buchert T., Mo H.J. : ‘Probing pencil beams in pancake models’,  
*Astron. Astrophys.* **249**, 307-311 (1991).
5. Buchert T., Bartelmann M. : ‘High-spatial resolution in three dimensions : a challenge for large-scale structure formation models’,  
*Astron. Astrophys.* **251**, 389-392 (1991).
6. Bildhauer S., Buchert T. : ‘The relation between peculiar-velocity and density parameter for a class of solutions in Newtonian cosmology’,  
*Prog. Theor. Phys.* **86**, 653-658 (1991).
7. Buchert T. : ‘Lagrangian theory of gravitational instability of Friedmann-Lemaître cosmologies and the “Zel’dovich approximation”’,  
*M.N.R.A.S.* **254**, 729-737 (1992).
8. Bildhauer S., Buchert T., Kasai M. : ‘Solutions in Newtonian cosmology – the pancake theory with cosmological constant’,  
*Astron. Astrophys.* **263**, 23-29 (1992).
9. Blanchard A., Buchert T., Klaffl R. : ‘Can the neutrino picture be revived? – QSO constraints revisited’,  
*Astron. Astrophys.* **267**, 1-10 (1993).
10. Buchert T., Martínez V.J. : ‘The two-point correlation function in pancake models and the fair sample hypothesis’,  
*The Astrophysical Journal* **411**, 485-500 (1993).
11. Buchert T. : ‘Lagrangian perturbation theory – a key-model for large-scale structure’,  
*Astron. Astrophys.* **267**, L51-L54 (1993).
12. Weiss A.G., Buchert T. : ‘High resolution simulation of deep pencilbeam surveys – analysis of quasi-periodicity’,  
*Astron. Astrophys.* **274**, 1-11 (1993).
13. Buchert T., Ehlers J. : ‘Lagrangian theory of gravitational instability of Friedmann-Lemaître cosmologies – second-order approach : an improved model for nonlinear clustering’,  
*M.N.R.A.S.* **264**, 375-387 (1993).

14. Buchert T. : ‘Lagrangian theory of gravitational instability of Friedmann–Lemaître cosmologies – a generic third–order model for nonlinear clustering’,  
*M.N.R.A.S.* **267**, 811-820 (1994).
15. Buchert T., Melott A.L., Weiss A.G. : ‘Testing higher–order Lagrangian perturbation theory against numerical simulations – 1. Pancake models’,  
*Astron. Astrophys.* **288**, 349-364 (1994).
16. Mecke K.R., Buchert T., Wagner H. : ‘Robust morphological measures for large–scale structure in the Universe’,  
*Astron. Astrophys.* **288**, 697-704 (1994).
17. Melott A.L., Buchert T., Weiss A.G. : ‘Testing higher–order Lagrangian perturbation theory against numerical simulations – 2. Hierarchical models’,  
*Astron. Astrophys.* **293**, 641-651 (1995).
18. Weiss A.G., Gottlöber S., Buchert T. : ‘Optimizing higher–order Lagrangian perturbation theory for Standard CDM and BSI models’,  
*M.N.R.A.S.* **278**, 953-964 (1996).
19. Buchert T., Ehlers J. : ‘Averaging inhomogeneous Newtonian cosmologies’,  
*Astron. Astrophys.* **320**, 1-7 (1997).
20. Buchert T., Karakatsanis G., Klaffl R., Schiller P. : ‘The performance of Lagrangian perturbation schemes at high resolution’,  
*Astron. Astrophys.* **318**, 1-10 (1997).
21. Susperregi M., Buchert T. : ‘Cosmic density and velocity fields in Lagrangian perturbation theory’,  
*Astron. Astrophys.* **323**, 295-304 (1997).
22. Karakatsanis G., Buchert T., Melott A.L. : ‘Temporal optimization of Lagrangian perturbation schemes’,  
*Astron. Astrophys.* **326**, 873-884 (1997).
23. Kerscher M., Schmalzing J., Retzlaff J., Borgani S., Buchert T., Gottlöber S., Müller V., Plionis M., Wagner H. : ‘Minkowski–Functionals of Abell / ACO clusters’,  
*M.N.R.A.S.* **284**, 73-84 (1997).
24. Ehlers J., Buchert T. : ‘Newtonian cosmology in Lagrangian formulation : foundations and perturbation theory’,  
*Gen. Rel. Grav.* **29**, 733-764 (1997).
25. Schmalzing J., Buchert T. : ‘Beyond genus statistics : a unifying approach to the morphology of cosmic structure’,  
*The Astrophysical Journal* **482**, L1-L4 (1997).
26. Kerscher M., Schmalzing J., Buchert T., Wagner H. : ‘Fluctuations in the IRAS 1.2 Jy catalogue’,  
*Astron. Astrophys.* **333**, 1-12 (1998).
27. Buchert T., Domínguez A. : ‘Modeling multi–stream flow in collisionless matter : approximations for large–scale structure beyond shell–crossing’,  
*Astron. Astrophys.* **335**, 395-402 (1998).
28. Buchert T., Domínguez A., Pérez–Mercader J. : ‘Extending the scope of models for large–scale structure formation in the Universe’,  
*Astron. Astrophys.* **349**, 343-353 (1999).
29. Kerscher M., Pons–Borderia M.–J., Schmalzing J., Trasarti–Battistoni R., Buchert T., Martínez V.J., Valdarnini R. : ‘A global descriptor of spatial pattern interaction in the galaxy distribution’,  
*The Astrophysical Journal* **513**, 543-548 (1999).

30. Fritsch C., Buchert T. : ‘The fundamental plane of clusters of galaxies : a quest for understanding cluster dynamics and morphology’,  
*Astron. Astrophys.* **344**, 749-754 (1999).
31. Adler S., Buchert T. : ‘Lagrangian theory of structure formation in pressure–supported cosmological fluids’,  
*Astron. Astrophys.* **343**, 317-324 (1999).
32. Schmalzing J., Buchert T., Melott A.L., Sahni V., Sathyaprakash B.S., Shandarin S.F. : ‘Disentangling the cosmic web I : morphology of isodensity contours’,  
*The Astrophysical Journal* **526**, 568-578 (1999).
33. Buchert T. : ‘On average properties of inhomogeneous fluids in general relativity : dust cosmologies’,  
*Gen. Rel. Grav.* **32**, 105-125 (2000).
34. Buchert T., Kerscher M., Sicka C. : ‘Backreaction of inhomogeneities on the expansion : the evolution of cosmological parameters’,  
*Phys. Rev. D* **62**, 043525-1-21 (2000).
35. Beisbart C., Buchert T., Wagner H. : ‘Morphometry of spatial patterns’,  
*Physica A* **293**, 592-604 (2001).
36. Kerscher M., Mecke K.R., Schmalzing J., Beisbart C., Buchert T., Wagner H. : ‘Morphological fluctuations of large–scale structure : the PSCz survey’,  
*Astron. Astrophys.* **373**, 1-11 (2001).
37. Buchert T. : ‘On average properties of inhomogeneous fluids in general relativity : perfect fluid cosmologies’,  
*Gen. Rel. Grav.* **33**, 1381-1405 (2001).
38. Kerscher M., Buchert T., Futamase T. : ‘On the abundance of collapsed objects’,  
*The Astrophysical Journal* **558**, L79-L82 (2001).
39. Beisbart C., Valdarnini R., Buchert T. : ‘The morphological and dynamical evolution of simulated galaxy clusters’,  
*Astron. Astrophys.* **379**, 412-425 (2001).
40. Buchert T., Carfora M. : ‘Regional averaging and scaling in relativistic cosmology’,  
*Class. Quant. Grav.* **19**, 6109-6145 (2002).
41. Buchert T., Carfora M. : ‘Cosmological parameters are dressed’,  
*Phys. Rev. Lett.* **90**, 31101 (2003).
42. Hikage C., Schmalzing J., Buchert T., Suto Y., Kayo I., Taruya A., Vogeley M.S., Hoyle F., Gott III J.R., Brinkmann J. : ‘Minkowski Functionals of SDSS galaxies I : Analysis of Excursion Sets’,  
*PASJ* **55**, 911-931 (2003).
43. Yano T., Koyama H., Buchert T., Gouda N., ‘Universality in the distribution of caustics in the expanding Universe’,  
*The Astrophysical Journal Suppl.* **151**, 185-192 (2004).
44. Hosoya A., Buchert T., Morita M. : ‘Information entropy in cosmology’,  
*Phys. Rev. Lett.* **92**, 141302-1-4 (2004).
45. Buchert T., Domínguez A. : ‘Adhesive gravitational clustering’,  
*Astron. Astrophys.* **438**, 443-460 (2005).
46. Ellis G.F.R., Buchert T. : ‘The universe seen at different scales’,  
*Phys. Lett. A (Einstein Special Issue)* **347**, 38-46 (2005).
47. Buchert T. : ‘A cosmic equation of state for the inhomogeneous Universe : can a global far–from–equilibrium state explain Dark Energy?’,  
*Class. Quant. Grav.* **22**, L113-L119 (2005).

48. Buchert T. : ‘On globally static and stationary cosmologies with or without a cosmological constant and the Dark Energy problem’,  
*Class. Quant. Grav.* **23**, 817-844 (2006).
49. Buchert T. : ‘An exact Lagrangian integral for the Newtonian gravitational field strength’,  
*Phys. Lett. A* **354**, 8–14 (2006).
50. Buchert T. : ‘The non-perturbative regime of cosmic structure formation’,  
*Astron. Astrophys.* **454**, 415–422 (2006).
51. Buchert T., Larena J., Alimi J.–M. : ‘Correspondence between kinematical backreaction and scalar field cosmologies – the ‘morphon field’’,  
*Class. Quant. Grav.* **23**, 6379–6408 (2006).
52. Buchert T. : ‘Dark Energy from Structure – a status report’ ; invited review.  
*Gen. Rel. Grav.* (Dark Energy special issue) **40**, 467–527 (2008).
53. Buchert T., Carfora M. : ‘On the curvature of the present-day Universe’,  
*Class. Quant. Grav.* **25**, 195001 (2008).
54. Larena J., Alimi J.M., Buchert T., Kunz M., Corasaniti P.S. : ‘Testing backreaction effects with observations’,  
*Phys. Rev. D* **79**, 083011 (2009).
55. Buchert T., Ellis G.F.R., v. Elst H. : ‘Geometrical order-of-magnitude estimates for spatial curvature in realistic models of the Universe’.  
*Gen. Rel. Grav.* (Special issue in memoriam Jürgen Ehlers) **41**, 2017–2030 (2009).
56. Ehlers J., Buchert T. : ‘On the Newtonian limit of the Weyl tensor’.  
*Gen. Rel. Grav.* (Special issue in memoriam Jürgen Ehlers) **41**, 2153–2158 (2009).
57. Roy X., Buchert T. : ‘Chaplygin gas and effective description of inhomogeneous universe models in general relativity’.  
*Class. Quant. Grav.* **27**, 175013 (2010).
58. Wiegand A., Buchert T. : ‘Multiscale cosmology and structure-emerging Dark Energy : a plausibility analysis’.  
*Phys. Rev. D* **82**, 023523 (2010).
59. Buchert T., Obadia N. : ‘Effective Inhomogeneous Inflation : curvature inhomogeneities of the Einstein vacuum’.  
*Class. Quant. Grav. F.T.C.* **28**, 162002 (2011).
60. Roy X., Buchert T., Carloni S., Obadia N. : ‘Global gravitational instability of FLRW backgrounds — interpreting the dark sectors’.  
*Class. Quant. Grav.* **28**, 165004 (2011).
61. Buchert T. : ‘Toward physical cosmology : focus on inhomogeneous geometry and its non-perturbative effects’ ; invited review.  
*Class. Quant. Grav.* (Focus section on ‘inhomogeneous cosmological models and averaging in cosmology’) **28**, 164007 (2011).

## Invited Papers and Workshop Contributions

1. Buchert T. : ‘Analytical models for large–scale structure in the Universe’, in : IAP Workshop, Paris (France) *The World of Galaxies*, H.G. Corwin, L. Bottinelli (eds.), 473-476 (1989).
2. Buchert T. : ‘Lighting up pancakes – Towards a theory of galaxy formation’, Astronomical Society, ‘Highlight-talk’, Graz (Austria), *Rev. Mod. Astron.* **2**, 267-281 (1989).
3. Buchert T., Mo H.J. : ‘Statistical discriminators of large–scale structure’, in : *Progress report on cosmology and gravitational lensing*, Ringberg, Tegernsee (Germany), Proceedings MPA/P3, G. Börner, T. Buchert, P. Schneider (eds.), 17-23 (1989).
4. Buchert T., Schiller P. : ‘The peculiar–velocity field in pancake models’, in : *Progress report on cosmology and gravitational lensing*, Proceedings MPA/P3, Ringberg, Tegernsee (Germany), G. Börner, T. Buchert, P. Schneider (eds.), 158-162 (1989).
5. Klaffl R., Buchert T., Einasto J. Kates R., Saar E. : ‘Cosmography of the Virgo, Coma and Perseus superclusters’, in : *Progress report on cosmology and gravitational lensing*, Proceedings MPA/P3, Ringberg, Tegernsee (Germany), G. Börner, T. Buchert, P. Schneider (eds.), 144 (a movie) (1989).
6. Buchert T. : ‘Lighting up pancakes – Towards a theory of galaxy formation’, in : *Progress report on cosmology and gravitational lensing*, Proceedings MPA/P3, Ringberg, Tegernsee (Germany), G. Börner, T. Buchert, P. Schneider (eds.), 1-16 (1989).
7. Buchert T., Klaffl R. : ‘Illustrations of two– and three–dimensional pancaking’, in : *Dark Matter in the Universe*, Erice (Italy), P. Galeotti, D.N. Schramm (eds.), Kluwer Acad. Pub., 93-98 (1990).
8. Buchert T., Klaffl R. : ‘Illustrations of two- and three-dimensional pancaking’, in : *Dark Matter in the Universe*, Third Nishinomiya–Yukawa Memorial Symposium, Nishinomiya 1988 (Japan), H. Sato, H. Kodama (eds.), Springer Berlin, N.Y. NATO Advanced Science Institutes, ASI Series C, Volume 296, 93 (1990).
9. Buchert T. : ‘High–spatial resolution of pancakes’, IAU Workshop Tenerife (Spain), *Astrophys. Sp. Sci.* **171**, 135-139 (1990).
10. Buchert T. : ‘Galaxy formation in pancake models’, IAU Workshop Tenerife (Spain), *Astrophys. Sp. Sci.* **171**, 141-145 (1990).
11. Buchert T., Klaffl R. : ‘Three–dimensional realizations of dynamically thresholded pancake models’, in : Rencontres de Blois (France) *Physical Cosmology*, A. Blanchard et al. (eds.), Frontières Paris, 591-594 (1991).
12. Buchert T. : ‘Dynamical thresholding of pancake models : 1. Dynamical thresholding ; 2. The two–point correlation function ; 3. Large 2D realizations and subsampling’, in : Rencontres de Blois (France) *Physical Cosmology*, A. Blanchard et al. (eds.), Frontières Paris, 475-483 (1991).
13. Buchert T. : ‘Dynamical thresholding of pancake models : A promising variant of the HDM picture’, in : Proc. 3rd MPG–CAS Workshop on *High Energy Astrophysics – Compact Stars and Active Galaxies*, Huangshan (PR China), ed. : Li Qibin, World Scientific, Singapore, 242-252 (1991).
14. Buchert T., Bartelmann M. : ‘High–spatial resolution of pancakes in 3D’, in : 2nd. DAEC meeting Meudon (France) *Distribution of Matter in the Universe*, G. Mamon, D. Gerbal (eds.), Meudon : Observatoire de Paris, 277-280 (1992).
15. Buchert T. : ‘Vorticity in pancake models’, in : 2nd. DAEC meeting Meudon (France) *Distribution of Matter in the Universe*, G. Mamon, D. Gerbal (eds.), Meudon : Observatoire de Paris, 281-286 (1992).
16. Buchert T., Martínez V.J. : ‘What is a fair sample ?’, in : *Observational Cosmology*, Chincarini G. et al. (eds.), ASP Conference Series Vol. **51**, 72-73 (1993).

17. Buchert T., Weiss A.G. : ‘Third–order Lagrangian perturbation theory – realization at high–spatial resolution’, in : 9th IAP conference Paris (France) *Cosmic Velocity Fields*, F. Bouchet, M. Lachièze–Rey (eds.), Frontières Paris, 517–519 (1993).
18. Buchert T. : ‘Higher–order Lagrangian perturbation theory’, in : Proceedings *4th MPG–CAS Workshop on High–energy astrophysics and Cosmology*, Ringberg, Tegernsee (Germany), Proceedings MPA/P8, G. Börner, T. Buchert (eds.), 204–214 (1993).
19. Weiss A.G., Buchert T. : ‘High–resolution simulation of deep pencil beam surveys’, in : Proceedings *4th MPG–CAS Workshop on High–energy astrophysics and Cosmology*, Ringberg, Tegernsee (Germany), Proceedings MPA/P8, G. Börner, T. Buchert (eds.), 310–318 (1993).
20. Buchert T. : ‘Cosmogony of generic structures’, in : *Galaxy formation and large–scale structure of the Universe – The coming decade*, Nandaihe (PR China), Z.-L. Zou, Y. Chen, P.-W. Ji (eds.), *Astrophysics Reports* **1**, Pub. Beijing Astron. Obs., 59–70 (1995).
21. Platzöder M., Buchert T. : ‘Application of Minkowski functionals to the statistical analysis of dark matter models’, in : *1st SFB workshop on Astro–particle physics*, Report SFB/P001, Ringberg, Tegernsee, (Germany), A. Weiss, G. Raffelt, W. Hillebrandt, F.v. Feilitzsch (eds.), 251–263 (1995).
22. Buchert T. : ‘Robust morphological measures for large–scale structure’, in : *11th Potsdam Cosmology Workshop on Large–scale Structure in the Universe*, Geltow (Germany), J. Mückel, S. Gottlöber, V. Müller (eds.), World Scientific, 156–161 (1995).
23. Buchert T., Melott A.L., Weiss A.G. : ‘Optimized Lagrangian approximations for modelling large–scale structure at nonlinear stages’, in : *11th Potsdam Cosmology Workshop on Large–scale Structure in the Universe*, Geltow (Germany), J. Mückel, S. Gottlöber, V. Müller (eds.), World Scientific, 364–368 (1995).
24. Buchert T. : ‘Averaging hypotheses in Newtonian cosmology’, in : *Mapping, Measuring and Modelling the Universe*, València (Spain) 1995, P. Coles, V.J. Martínez, M.J. Pons (eds.), ASP Conference Series 94, 349–356 (1996).
25. Weiss A.G., Gottlöber S., Buchert T. : ‘Optimizing higher–order Lagrangian perturbation theory for Cold Dark Matter models’, in : *Mapping, Measuring and Modelling the Universe*, València (Spain) 1995, P. Coles, V.J. Martínez, M.J. Pons (eds.), ASP Conference Series 94, 13–18 (1996).
26. Kerscher M., Schmalzing J., Buchert T. : ‘Analyzing galaxy catalogues with Minkowski Functionals’, in : *Mapping, Measuring and Modelling the Universe*, València (Spain) 1995, P. Coles, V.J. Martínez, M.J. Pons (eds.), ASP Conference Series 94, 247–252 (1996).
27. Buchert T. : ‘Lagrangian perturbation approach to the formation of large–scale structure’, in : *Proc. International School Enrico Fermi, Course CXXXII (Dark Matter in the Universe)*, Varenna (Italy), S. Bonometto, J.R. Primack, A. Provenzale (eds.), IOS Press Amsterdam, 543–564 (1996).
28. Schmalzing J., Kerscher M., Buchert T. : ‘Minkowski functionals in cosmology’, in : *Proc. International School Enrico Fermi, Course CXXXII (Dark Matter in the Universe)*, Varenna (Italy), S. Bonometto, J.R. Primack, A. Provenzale (eds.), IOS Press Amsterdam, 281–291 (1996).
29. Buchert T. : ‘Lagrangian cosmogonies for the modeling of large–scale structure’, in : *SFB workshop on Astro–particle physics*, ESO Report, Ringberg, Tegernsee (Germany) 1995, A. Weiss, G. Raffelt, W. Hillebrandt, F.v. Feilitzsch, T. Buchert (eds.), 356–358 (1996).
30. Ellis G.F.R., Börner G., Buchert T., Ehlers J., Hogan C.J., Kirshner R.P., Press W.H., Raffelt G., Thielemann F.–K., Van den Bergh S. : ‘What do we really know about the global properties of the Universe’, in : Dahlem Workshop Report ES19 *The Evolution of the Universe*, Berlin (Germany) 1995, G. Börner, S. Gottlöber (eds.), Chichester : Wiley, 51–78 (1997).
31. Buchert T. : ‘Averaging inhomogeneous cosmologies : a dialogue’, in : *2nd SFB workshop on Astro–particle physics*, Report SFB/P002, Ringberg, Tegernsee (Germany) 1996, R. Bender, T. Buchert, P. Schneider, F.v. Feilitzsch (eds.), 71–82 (1997).

32. Kerscher M., Schmalzing J., Buchert T., Wagner H. : ‘The significance of the fluctuations in the IRAS 1.2 Jy catalogue’, in : *2nd SFB workshop on Astro–particle physics*, Report SFB/P002, Ringberg, Tegernsee (Germany) 1996, R. Bender, T. Buchert, P. Schneider, F.v. Feilitzsch (eds.), 83-98 (1997).
33. Buchert T. : ‘A fresh look at the adhesion approximation’, in : *12th Potsdam Cosmology Workshop on Large–scale Structure in the Universe*, Potsdam (Germany) 1997, V. Müller, S. Gottlöber, J.P. Mückel, J. Wambsganss (eds.), World Scientific, 295-296 (1998).
34. Beisbart C., Buchert T. : ‘Characterizing cluster morphology using vector–valued Minkowski functionals’, in : *12th Potsdam Cosmology Workshop on Large–scale Structure in the Universe*, Potsdam (Germany) 1997, V. Müller, S. Gottlöber, J.P. Mückel, J. Wambsganss (eds.), World Scientific, 197-200 (1998).
35. Buchert T. : ‘Stabilization of large–scale structure by adhesive gravitational clustering’, in : *From Stars to the Universe*, Shanghai (PR China) 1998, Annals of Shanghai Observatory (1998).
36. Sicka C., Buchert T., Kerscher M. : ‘Backreaction in cosmological models’ in : *5th SFB 375 Ringberg workshop*, Ringberg (Tegernsee, Germany) 1998, D. Thomas (ed.), 75-79 (1999).
37. Beisbart C., Buchert T. : ‘Pressure–supported cosmic structure formation : analytical schemes beyond the adhesion approximation’, in : *5th SFB 375 Ringberg workshop*, Ringberg (Tegernsee, Germany) 1998, D. Thomas (ed.), 81-84 (1999).
38. Buchert T. : ‘On average properties of inhomogeneous cosmologies’, in : *9th JGRG Meeting*, Hiroshima 1999, Y. Eriguchi et al. (eds.), 306-321 (2000).
39. Kerscher M., Buchert T., Sicka C. : ‘Backreaction and the evolution of cosmological parameters’, in : *Sixth SFB-375 Ringberg workshop*, Ringberg (Tegernsee, Germany) 1999, J. Reingruber (ed.), 45-47 (2000).
40. Domínguez A., Beisbart C., Buchert T., Kerscher M., Schmalzing J., Wagner H. : ‘Morphology of the large–scale structure’, in : *Proceedings of the 4th MPG–CAS workshop ‘Cosmology in the New Millennium’*, Shanghai 2001, *Prog. in Astron. (Suppl.)* **19**, 32-36 (2001).
41. Buchert T., Carfora M. : ‘Matter seen at many scales and the geometry of averaging in relativistic cosmology’, in : *General Relativity, Cosmology, and Gravitational Lensing*, Marmo G., Rubano C., Scudellaro P. (eds.), Napoli Series on Physics and Astrophysics, Bibliopolis, Naples, 29-44 (2002).
42. Buchert T., Carfora M. : ‘The cosmic quartet : cosmological parameters of a smoothed inhomogeneous spacetime’, in : *12th JGRG Meeting*, Tokyo 2002, M. Shibata et al. (eds.), 157-161 (2003).
43. Yano T., Koyama H., Buchert T., Gouda N. : ‘Universality in the distribution of caustics’, in : *Annual Report of the National Astronomical Observatory of Japan*, Vol. 6, K. Tanikawa et al. (eds.), NAO, Osawa, Mitaka-shi, Tokyo, Japan, p.13 (2005).
44. Larena J., Buchert T., Alimi J.-M. : ‘Reinterpreting quintessential dark energy through averaged inhomogeneous cosmologies’, in : *Proceedings of the SF2A conference*, Paris, France, D. Barret et al. (eds.), 281-284 (2006).
45. Buchert T. : ‘Backreaction issues in relativistic cosmology and the Dark Energy debate’, in : *XII. Brazilian School of Cosmology and Gravitation*, Mangaratiba, Rio de Janeiro, Brazil 2006, M. Novello et al. (eds.), AIP Conf. Proc. 910, 361-380 (2007).
46. Larena J., Buchert T., Alimi J.-M. : ‘Reinterpreting Dark Energy through backreaction : the minimally coupled morphon field’, in : *Proceedings of the 11th Marcel Grossman Meeting*, Berlin, Germany, H. Kleinert, R.T. Jantzen, R. Ruffini (eds.), World Scientific, p. 1831 (2008).
47. Buchert T., Carfora M. : ‘Ricci flow deformation of cosmological initial data sets’, in : *14th International Conference on Waves and Stability in Continuous Media*, Scicli (Ragusa, Italy), N. Manganaro et al. (eds.), World Scientific, 118-127 (2008).

48. Morita M., Buchert T., Hosoya A., Li N. : ‘Relative information entropy of an inhomogeneous universe’, in : *U.N.E.S.C.O conference*, Paris 2009, J.-M. Alimi and A. Füzfa (eds.), AIP Conference Proceedings Vol 1241, 1074-1082 (2010).
49. Buchert T., Obadia N., Roy X. : ‘Effective inhomogeneous cosmologies and emerging scalar fields’, presented at *New Directions in Modern Cosmology*, Leiden 2010; arXiv :1012.3083 (2010).
50. Wiegand A., Buchert T. : ‘Multiscale approach to inhomogeneous cosmologies’, presented at *New Directions in Modern Cosmology*, Leiden 2010; arXiv :1103.1531 (2010).
51. Buchert T. : ‘Towards physical cosmology : geometrical interpretation of Dark Energy, Dark Matter and Inflation without fundamental sources’, in : *International Conference on Two Cosmological Models*, Mexico City 2010, Universidad Iberoamericana Ciudad de Mexico, in press (2011).

## Other Publications and Editorial Work

### Thesis Work :

1. Buchert T. : ‘Phasenübergänge und chemische Reaktionen in einem Friedmann–Universum mit Anwendungen auf den Quark–Hadron–Übergang und Inflationäre Szenarien’ (‘Phase transitions and chemical reactions in a Friedmann universe with applications to the Quark–Hadron transition and inflationary scenarios’)  
Diploma Thesis, Advisors : Prof. G. Börner, Prof. J. Ehlers (MPA Garching); LMU Munich : July 1st (1984).
2. Buchert T. : ‘Die Pancake–Theorie der Bildung Supergalaktischer Strukturen – Analytische Grundlagen’ (‘The Pancake Theory of formation of supergalactic structures – analytical foundations’)  
Doctoral Thesis, Advisors : Prof. G. Börner, Prof. J. Ehlers (MPA Garching); LMU Munich : March 7th (1988).
3. Buchert T. : ‘Inhomogeneous Newtonian Cosmogony’  
Habilitation Thesis, Advisors : Prof. G. Börner, Prof. J. Ehlers (MPA Garching); LMU Munich : November 1st (1993).

### Books :

1. Buchert T. : ‘Dark Energy and Dark Matter hidden in the Geometry of Space ? – The Dawn of a New Paradigm in Cosmology’, In : Adams F., Buchert T., Mersini–Houghton L. : *Multiversal Journeys Vol. II*, (ed. by F. Nekoogar), Springer, New York, in print (2011).
2. Buchert T. : ‘Univers Invisible ou Universe inhomogène ? – Les problèmes de la matière et de l’énergie noires’, In : *Un autre cosmos*, (ed. by T. Lepeltier, J.–M. Bonnet–Bidaud), Vuibert, France, in print (2011).
3. Hugué Manoukian J., Buchert T. : ‘Illusion, Vérité et Réel : la psychoanalyse et la cosmologie – un Entretien’, to appear (2012).
4. Buchert T. : ‘Cosmic Continua – a treatise on self–gravitating collisionless systems in cosmology’, Cambridge University Press (contract submission date : December 31st 2012), in progress.

### Conference Editions :

1. Börner G., Buchert T., Schneider P. : Proceedings *Progress report on cosmology and gravitational lensing*, Ringberg (Tegernsee) 1989, Germany, Yellow Report MPA/P3 (1989).

2. Börner G., Buchert T. : Proceedings *4th MPG–CAS Workshop on High–energy astrophysics and Cosmology*, Ringberg (Tegernsee) 1993, Germany, Yellow Report MPA/P8 (1993).
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