

Publication List

— Thomas Buchert

Date : January 3, 2022

ADS Citations : Total : 6132; normalized per author : 3502

h-INDEX : h=45 TORI-INDEX : tori=75,4

Citations per year (averaged over the past five years) : \cong 368

Total number of Reads : 40012

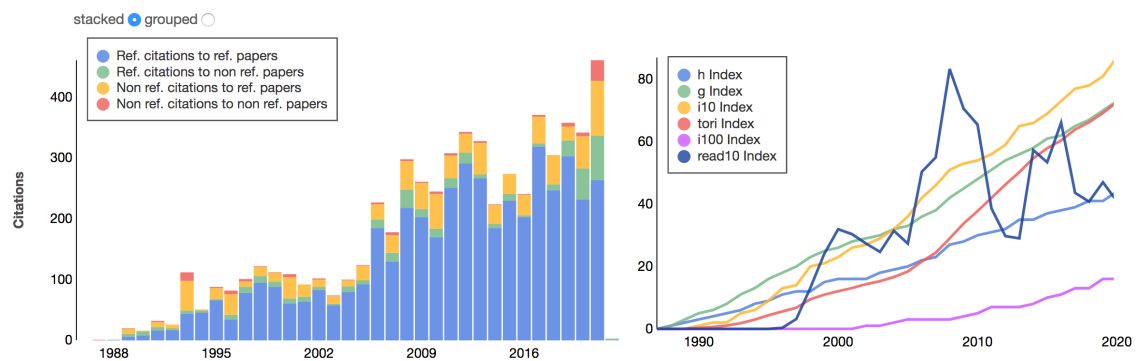


FIGURE 1 – Citations per year and indices of impact — Figure courtesy of ADS

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).
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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’,
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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’,
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24. Ehlers J., Buchert T. : ‘Newtonian cosmology in Lagrangian formulation : foundations and perturbation theory’,
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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’,
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35. Beisbart C., Buchert T., Wagner H. : ‘Morphometry of spatial patterns’,
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40. Buchert T., Carfora M. : ‘Regional averaging and scaling in relativistic cosmology’,
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62. Roy X., Buchert T. : ‘Relativistic cosmological perturbation scheme on a general background : scalar perturbations for irrotational dust’. *Class. Quant. Grav.* **29**, 115004 (2012).
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77. Buchert T., France M.J., Steiner F. : ‘Model-independent analyses of non-Gaussianity in Planck CMB maps using Minkowski Functionals’ ; invited article.
Class. Quant. Grav. (Focus section on ‘Planck and fundamentals of cosmology’) **34**, 094002 (2017).
78. Al Roumi F., Buchert T., Wiegand A. : ‘Lagrangian theory of structure formation in relativistic cosmology. IV. Lagrangian approach to gravitational waves’.
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82. Heinesen A., Mourier P., Buchert T. : ‘On the covariance of scalar averaging and backreaction in relativistic inhomogeneous cosmology’.
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83. Pranav P., van de Weygaert R., Vegter G., Jones B.J.T., Adler R.J., Feldbrugge J., Park C., Buchert T., Kerber M. : ‘Topology and Geometry of Gaussian random fields I : on Betti Numbers, Euler characteristic and Minkowski functionals’.
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84. Pranav P., Adler R.J., Buchert T., Edelsbrunner H., Jones B.J.T., Schwartzmann A., Wagner H., van de Weygaert R. : ‘Unexpected Topology of the Temperature Fluctuations in the Cosmic Microwave Background’.
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85. Desgrange C., Heinesen A., Buchert T. : ‘Dynamical spatial curvature as a fit to type Ia supernovae’.
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86. Vigneron Q., Buchert T. : ‘Dark Matter from Backreaction? Collapse models on galaxy cluster scales’.
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87. Buchert T., Mädler T. : ‘Editorial Note to : On the Newtonian limit of Einstein’s theory of gravitation (by Jürgen Ehlers)’.
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88. Buchert T., Mourier P., Roy X. : ‘On average properties of inhomogeneous fluids in general relativity III : General fluid cosmologies’.
Gen. Rel. Grav. **52**, 27 (2020).
89. Heinesen A., Buchert T. : ‘Solving the curvature and Hubble parameter inconsistencies through structure formation-induced curvature’.
Class. Quant. Grav. **37**, 164001 (2020).

90. Brunswic L., Buchert T. : ‘Gauss-Bonnet-Chern approach to the averaged Universe’.
Class. Quant. Grav. **37**, 215022 (2020).
91. Delgado Gaspar I., Buchert T. : ‘Lagrangian theory of structure formation in relativistic cosmology. VI. Comparison with Szekeres exact solutions’.
Phys. Rev. D **103**, 023513 (2021).
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Class. Quant. Grav. **38**, 225005 (2021).
93. Appleby S., Park C., Pranav P., Hong S.E., Hwang H.S., Kim J., Buchert T. : Minkowski Functionals of SDSS-III BOSS : Hints of Possible Anisotropy in the Density Field?
Astrophys. J. **XX**, submitted (2022).

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).
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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).
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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).

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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. Mücke, 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).
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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).
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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. Mücke, J. Wambsganss (eds.), World Scientific, 295–296 (1998).
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