A/Prof. Alexander Knebe

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date of birth: 31/01/1970

CURRICULUM VITAE

summary

Degrees:

07/2011	Accreditation as Professor "Titular"	*ANECA[1], Spain*
05/2011	Accreditation as Professor "Contratado Doctor"	*ANECA, Spain*
01/2010	Habilitation	*Potsdam University, Germany*
10/1999	PhD	*Potsdam University, Germany*
01/1996	Diploma (M.Sc.)	Christian-*Albrechts-University Kiel, Germany*

Employment:

since 03/2014	Associate Professor	*UAM, Spain*
03/2009 – 02/2014	Ramon Y Cajal Fellow (tenure-track)	*UAM, Spain*
03/2005 – 02/2009	Emmy Noether Fellow	*AIP, Germany*
10/2004 – 02/2005	Postdoctoral Researcher	*AIP, Germany*
10/2001 – 05/2004	Postdoctoral Researcher	*Swinburne University, Australia*
06/1999 – 05/2001	Postdoctoral Researcher	*Oxford University, United Kingdom*

Publications:

- 121 peer-reviewed publications (of which 30 are 1st author), 4 papers submitted
- >4200 citations
- h-index 33

Presentations:

- 25 colloquia talks
- 28 oral presentations at international meetings (incl. 6 reviews)

Teaching:

- 290 hours of classroom lecturing at undergraduate and graduate level
- 600 hours of laboratory courses at undergraduate and graduate level

Supervision:

- 9 PhD students (2 on-going), 8 MSc students
- co-supervision of 4 PhD students

Competitive Grants:

- Principal Investigator of grants amounting to EUR 1 Mio.
- Co-Investigator of grants amounting to more than EUR 16 Mio.

Services:

- member of various committees (scientific, advisory, PhD, etc.)
- referee for internationally recognized journals (MNRAS, ApJ, ApSS, etc.)
- referee for various funding agencies (e.g. DFG, ANPCYT)

[1] Agencia Nacional de Evaluación de la Calidad y Acreditación

professional experience

since 03/2014 **Associate Professor (tenured)** ***UAM, Madrid, Spain***

- near-field cosmology, the local group of galaxies, high-performance computing, alternative cosmologies, galaxy formation and evolution, large-scale structure of the universe

results (so far): **27 refereed paper, 6 submitted**

03/2009 – 02/2014 **Ramon y Cajal Fellow (tenure-track)** ***UAM, Madrid, Spain***

- near-field cosmology, alternative cosmologies

results: **46 refereed**

03/2005 – 02/2009 **Head of "Emmy Noether" Group** ***AIP, Potsdam, Germany***

- leading project "*AMIGA*: *Adaptive Mesh Investigations of Galaxy Assembly*"

results: **20 refereed papers**

10/2004 – 02/2005 **Postdoctoral Researcher** ***AIP, Potsdam, Germany***

- studying satellite galaxies in phase-space

results: **2 refereed papers**

06/2004 – 07/2004 **Visiting Scientist** ***UAM, Madrid, Spain***

- initiating/refreshing collaborative links

results: **1 refereed paper**

10/2001 – 05/2004 **Postdoctoral Researcher** ***Swinburne, Melbourne, Australia***

- structure formation in non-standard models of the Universe, the dynamics of satellite galaxies

results: **10 refereed papers**

06/2001 – 09/2001 **Visiting Scientist** ***UAM, Madrid, Spain***

- co-organizing workshop *Hydrodynamical Simulations of Galaxy Assembly*

06/1999 – 05/2001 **Postdoctoral Researcher** ***Oxford University, United Kingdom***

- developing new *C* code for cosmological simulations, investigating galaxy formation in various cosmologies

results: **4 refereed papers**

03/1996 – 05/1999 **Research Assistant** ***AIP, Potsdam, Germany***

- comparing numerical techniques for cosmological simulations, studying the formation and evolution of galaxy clusters

results: **6 refereed papers**

01/1993 – 01/1996 **Graduate Assistant** ***Christian-Albrechts-University, Kiel, Germany***

- tutoring undergraduates in theoretical physics and mathematics

education

07/2011 **Accreditation as Associate Professor** ***ANECA[2], Spain***

01/2010 **Habilitation** ***Potsdam University, Germany***
- field of research: computational cosmology

03/1996 – 05/1999 **Post-Graduate Studies** ***Potsdam University, Germany***
- field of research: computer simulations, clusters of galaxies
  - PhD degree, grade: magna cum laude

10/1996 **Autumn School on Cosmology** ***Garching, Germany***

10/1990 – 01/1996 **Graduate Studies** ***Christian-Albrechts-University, Kiel, Germany***
- main subjects: quantum mechanics, atom physics, mathematics
  - 1996: Diplom (M.Sc.), grade: 1.0
  - 1992: Vordiplom (B.Sc.), grade: 1.2

07/1989 – 10/1990 **Civil Service** ***Diakonisches Werk, Kiel, Germany***

07/1980 – 07/1989 **Grammar School** ***Ernst-Barlach-Gymnasium, Kiel, Germany***
- A-level (specialized in physics & mathematics), grade: 1.3

(German grading system: 1=best, 6=worst)

[2] Agencia Nacional de Evaluacion de la Calidad y Acreditacion, http://www.aneca.es

professional activities and services

referee for...

- Ministerio de Economia y Competitividad (Spain)
- Deutsche Forschungs-Gemeinschaft (German Science Foundation)
- Agencia Nacional de Promoción Científica y Técnologia (Argentina)
- Luxembourg Research Foundation (Luxembourg)
- SHARCNET High-Performance Computing Consortium (Canada)
- DiRAC Resource Allocation Committee (UK)
- astrophysical journals (MNRAS, ApJ, PASA, A&A, Ap&SS)
- external examiner for postdoc applications and professorships
- external examiner for PhD theses

committee work

- Science Committee:
  - since 2010: PI of *Mocking Astrophysics* program
  - since 2010: *Cosmological Simulations Working Group* for Euclid[3] (Coordinator of several work packages)
  - 2013-15: member/chair of *MSc Tribunal*, UAM, Spain
- PhD committee:
  - 2017: Manuel Garcia, UAM
  - 2017: Sergio Rodriguez, UAM/IFT-CSIC
  - 2017: Ana Salvador, UAM/IFT-CSIC
  - 2014: Federico Sembolini, UAM
  - 2013: German Gomez, UAM
  - 2012: Miguel Zumalacarregiu, UAM
  - 2010: Raul Sevilla, UAM
  - 2010: Francois Sicard, Université Pierre et Marie Curie, Paris
  - 2010: Francisco Martinez-Serrano, UAM
  - 2009: Kristin Riebe, Potsdam University
  - 2009: Jose Onorbe, UAM
  - 2009: Steffen Knollmann, Potsdam University
- Time Allocation Committee:
  - 2015: Barcelona Supercomputing Centre
  - 2008: AIP partner nights at the Large-Binocular Telescope
- Science Advisory Committee:
  - 2004-2009: (spokesman of) internal science committee at AIP

[3] sci.esa.int/euclid (M-class satellite mission of ESA within Cosmic Vision 2015-2025 cycle)

workshop organisation (SOC)

- 09/2017: conference *Fundamental Cosmology*, Terual, Spain
- 06/2017: workshop *Crystal Clear Clusters*, Madrid, Spain (chair)
- 09/2016: workshop *MultiDark Galaxies*, La Plata, Argentina
- 07/2016: workshop *CompaCT Clusters*, Cape Town, South Africa
- 10/2016: workshop *Lightcones for Cosmology*, Garching, Germany
- 07/2015: workshop *Cosmic CARNage*, Pasadena, USA
- 06/2015: symposium *Gas in Galaxies* (EWASS 2015), Tenerife, Spain
- 03/2015: workshop *Perth Simulated Clusters*, Perth, Australia
- 06/2014: workshop *nIFTy Cosmology*, Madrid, Spain (chair)
- 07/2013: workshop *Sussing Merger Trees*, Sussex, UK
- 05/2012: workshop *Subhaloes going Notts*, Nottingham, UK
- 05/2010: workshop *Haloes going MAD*, UAM, Spain (chair)
- 09/2008: symposium *Computational Astrophysics* (JENAM 2008), Vienna, Austria
- 09/2001: workshop *Hydro. Simulations of Galaxy Assembly*, UAM, Spain

other activities

- since 2017: coordinator of Erasmus program at UAM
- since 2015: coordinator of astrophysics MSc program at UAM
- since 2011: (co-)organizer of colloquia at UAM
- 2013-2016: outreach coordinator at UAM
- 2005-2009: (co-)organizer of in-house colloquia at AIP
- 2001-2009: astro-ph club at Swinburne University, AIP, and UAM

awards

- 2005-08: Adjunct Research Fellow, Swinburne University, Australia

competetive grants and awards

principal investigator:

11/2013 **research grant** ***MINECO, Spain***
- Mocking the Universe: from LSS to our local neighbourhood

grant volume: **EUR 180.000**

11/2013 **workshop funding** ***Severo Ochoa Excellence Fund, Spain***
- "nIFTy Cosmolgy"[4]

grant volume: **EUR 30.000**

05/2010 **workshop funding** ***ASTROSIM (EU funding)***
- "Haloes going MAD"[5]

grant volume: **EUR 11.500**

03/2008-02/2014 **Ramon Y Cajal Fellowship** ***MICINN, Spain***
- The phase-space structure of disrupting satellite galaxies

grant volume: **EUR 200.000**

11/2006-10/2009 **PhD funding** ***DFG, Germany***
- *Simulations of the Universe using modified Newtonian Dynamics (MOND)*

grant volume: **EUR 90.000**

03/2005-02/2009 **Emmy Noether Fellowship** ***DFG, Germany***
- *AMIGA: Adaptive Mesh Investigations of Galaxy Assembly*

grant volume: **EUR 500.000**

01/2002-12/2002 **research development grant** ***Swinburne University, Australia***
- *High-performance Cosmological Simulations*

grant volume: **AUD 10.000**

co-investigator:

01/2017-12/2020 **research grant**, PI: Carlton Baugh ***H2020-RISE (EU funding)***
- *"LACEGAL: Latin American Chinese European Galaxy Formation Network"*

grant volume: **EUR 1.350.000**

01/2014-12/2017 **research grant**, PI: Belen Gavela ***H2020-ITN (EU funding)***
- *"Elusives" Initial Training Network*

grant volume: **EUR 3.800.000**

01/2014-12/2017 **research grant**, PI: Belen Gavela ***H2020-RISE (EU funding)***
- *"INVISIBLESplus"*

grant volume: **EUR 2.000.000**

01/2014-12/2017 **research grant**, PI: Chris Power ***ARC, Australia***
- *"The Orbits and Interactions of Satellite Galaxies: A Fundamental Test of Cosmology"*

grant volume: **AUD 360.000**

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[4] http://popia.ft.uam.es/nIFTyCosmology
[5] http://popia.ft.uam.es/HaloesGoingMAD

01/2013-12/2016 **research grant**, PI: Geraint Lewis ***ARC, Australia***

- *"Observing the synthetic universe: revealing the dark cosmos with future telescopes"*

grant volume: **AUD 390.000**

01/2013-12/2016 **research grant**, PI: Gustavo Yepes ***MICINN, Spain***

- *"The MareNostrum Numerical Cosmology Project II"*

grant volume: **EUR 290.000**

08/2012-07/2016 **research grant**, PI: Santiago Avila-Perez ***UAM, Spain***

- Supervisor of Santiago Avila-Perez's PhD's fellowship

grant volume: **EUR 120.000**

12/2011-12/2015 **research grant**, PI: Belen Gavela ***FP7-PEOPLE (EU funding)***

- *"INVISIBLES" Initial Training Network*

grant volume: **EUR 4.000.000**

12/2009-12/2014 **research grant**, PI: Carlos Munoz ***Consolider-Igenio, Spain***

- *"MultiDark: Multimessenger Approach for Dark Matter Detection"*

grant volume: **EUR 3.200.000**

10/2009-09/2013 **research grant**, PI: Miguel Mas ***Comunidad de Madrid, Spain***

- *"Astrofisica y Desarrollos tecnologicos en la Comunidad de Madrid"*

grant volume: **EUR 900.000**

01/2010-12/2012 **research grant**, PI: Gustavo Yepes ***MICINN, Spain***

- *"The MareNostrum Numerical Cosmology Project"*

grant volume: **EUR 370.000**

01/2010-12/2012 **research grant**, PI: Rosa Dominguez ***MICINN, Spain***

- *"Formación y Evolución de Galaxias en un Contexto Cosmológico desde las Simulaciones Numéricas"*

grant volume: **EUR 240.000**

07/2013 **workshop funding** ***COSMOCOMP (EU funding)***

- *"Sussing Merger Trees"*[6]

grant volume: **EUR 20.000**

05/2012 **workshop funding** ***COSMOCOMP (EU funding)***

- *"Subhaloes going Notts"*[7]

grant volume: **EUR 20.000**

05/2016-12/2017 **supercomputing grant** ***PRACE (EU funding)***

- *"Down to the Dwarfs"*

[6] http://popia.ft.uam.es/SussingMergerTrees
[7] http://popia.ft.uam.es/SubhaloesGoingNotts

grant volume: **25 mio. CPU hours**

11/2012-10/2013 supercomputing grant ***PRACE (EU funding)***
- *"Our Neighbourhood in the Universe: From First Stars to the Present Day"*

grant volume: **26 mio. CPU hours**

05/2011-04/2012 supercomputing grant ***PRACE (EU funding)***
- *"Large Scale simulation of Ly-alpha and Ly-break galaxies in the high-z universe: Probing the epoch of reionization"*

grant volume: **5 mio. CPU hours**

08/2011-12/2011 supercomputing grant ***Barcelona Supercomputing Centre***
- *"GALACTICA: GALaxies interACTing In a Cosmological hAbitat"*

grant volume: **800.000 CPU hours**

01/2008-12/2008 supercomputing grant ***DEISA (EU funding)***
- *"Galaxy Formation at different Epochs and in different Environenmts"*

grant volume: **800.000 CPU hours**

05/2012-08/2012 visitor programme ***UAM, Spain***
- grant to support Arianna Di Cintio's 3-months visit at the AIP working with Stefan Gottloeber and Noam Libeskind

grant volume: **EUR 1.800**

03/2012-06/2012 visitor programme ***UAM, Spain***
- grant to support Edoardo Carlesi's 3-months visit at the University of Sydney working with Geraint Lewis

grant volume: **EUR 2.400**

05/2009-09/2009 visitor programme ***ASTROSIM (EU funding)***
- grant to support Timur Doumler's 4-months visit at Universidad Autonoma de Madrid to work on the development of AHF

grant volume: **EUR 2.000**

06/2008-07/2008 visitor programme ***HPC-Europa (EU funding)***
- grant to support Claudio Llinares' 2-months visit at St. Andrew's University to work on galactic dynamics under MOND

grant volume: **EUR 1.300**

08/2007-11/2007 visitor programme ***HPC-Europa (EU funding)***
- grant to support Claudio Llinares 3-months visit at St. Andrew's University to work on MONDian cosmological simualtions

grant volume: **EUR 2.000**

01/2007-03/2007 visitor programme ***HPC-Europa (EU funding)***
- grant to support Steffen Knollmann's 3-months visit at Edinburgh University to work on MPI-paralellisation

grant volume: **EUR 2.000**

PUBLICATIONS

refereed journals

submitted

[125] Knebe A., et al. (33 co-authors)
Cosmic CARNage: on the calibration of galaxy formation models, MNRAS

[124] Knebe A., et al. (20 co-authors)
MultiDark Galaxies: data release and first results, MNRAS

[123] Dixon K., Iliev I.T., Gottloeber S., Yepes G., **Knebe A.**, Libeskind N., Hoffman Y.
Reionisation of the Milky Way, M31, and their satellites I: reionisation history and star formation, MNRAS

[122] Choque N., Smith R., Candlish G., Gibson B.K., **Knebe A.**, Fellhauer M.,
Tidal mass loss in the galaxy group environment, and pollution of the galaxy cluster population by pre-processed galaxies, MNRAS

2017

[121] Cui W., Knebe A., Yepes G., Yang X., Borgani S., Kang X., Power C., Stavley-Smith L.,
The large-scale environment from cosmological simulations I: baryonic cosmic web, MNRAS

[120] Kubik B., Libeskind N., **Knebe A.**, Courtois H., Yepes G., Gottloeber S., Hoffman Y.,
Universal subhalo accretion in cold and warm dark matter cosmologies, MNRAS, in press

[119] Libeskind N. et al. (30 co-authors),
Tracing the Cosmic Web, MNRAS, in press

[118] Snaith O.N., Bailin J., **Knebe A.**, Stinson G., Wadsley J., Couchman H.,
Haloes at the ragged edge: Rvir is the interface between the halo and the LSS, MNRAS, in press

[117] Maji M., Zhu Q., Li Y., Charlton, Hernquist L., **Knebe A.**,
The formation and evolution of star clusters in interacting galaxies, ApJ, in press

[116] Pujol A., et al. (37 co-authors)
nIFTy Cosmology: the clustering consistency of galaxy formation models, MNRAS, in press

[115] Cui W., Power C., Borgani S., **Knebe A.**, Lewis G.F., Murante G., Poole G.B.,
On the dynamical state of galaxy clusters: insights from cosmological simulations II, MNRAS, 464, 2502

[114] Arthur, J., Pearce F., Gray M., Elahi P., **Knebe A.**, Beck A., Cui W., Cunnama D., Dave R., February, Huang S., Katz N., Kay S., McCarthy I., Murante G., Perret V., Power C., Puchwein E., Saro A., Sembolini F., Teyssier R., Yepes G.,
nIFTy galaxy cluster simulations V: comparison of the cluster infall region, MNRAS,464, 2027

2016

[113] Ocvirk P., Gillet N., Shapiro P., Aubert D., Iliev I.T., Teyssier R., Yepes G., Choi J.-H., Sullivan D., **Knebe A.**, Gottloeber S., D'Aloisio A., Park H., Hoffman Y., Stranez T.,
Cosmic Dawn (CoDa): the first radiation-hydrodynamics simulation of reionistion and galaxy formation in the Local Universe, MNRAS, 463, 1462

[112] Wang Y., Pearce F.R., **Knebe A.**, Schneider A., Srisawat C., Tweed D., Jung I., Han J., Helly J., Onions J., Elahi P., Thomas P.A., Behroozi P., Yi S.-K., Rodriguez-Gomez V., Mao Y.-Y., Jing Y., Lin W.,
Sussing Merger Trees: stability and convergence, MNRAS, 459, 1554

[111] Carlesi E., Sorce J., Hoffman Y., Gottloeber S., Yepes G., Libeskind N., Pilipenko S., **Knebe A.**, Courtois H., Tully R.B., Steinmetz M.,
Contrained Local Universe Simulations: a local group factory, MNRAS, 458, 900

[110] Cui W., Power C., **Knebe A.**, Kay S.T., Sembolini F., Elahi P., yepes G., Pearce F., Cunnama D., Beck A., Dalla Vecchia C., Dave R., February S., Huang S., Hobbs A., Katz N., McCarthy I., Murante G., Perret V., Puchwein E., Read J., Sar A., Teyssier R., Thacker R.,
nIFTy galaxy cluster simulations IV: quantifying the influence of baryons on halo properties, MNRAS, 458, 4052

[109] Elahi P., **Knebe A.**, Pearce F.R., Power C., Yepes G., Cui W., Cunnama D., Kay S., Sembolini F., Beck A., Dave R., February S., Huang S., Katz N., McCarthy I., Murante G., Perret V., Puchwein E., Saro A., Teyssier R.,
nIFTy galaxy cluster simulatiosn III: the similarity & diversity of galaxies & subhaloes, MNRAS, 458, 1096

[108] Sembolini F., Elahi P., Pearce F.R., Power C., **Knebe A.**, Kay S.T., Cui W., Yepes G., Beck A., Borgani S., Cunnama D., Dave R., February S., Huang S., Katz N., McCarthy I., Murante G., Newton R., Perret V., Puchwein E., Saro A., Schaye J., Teyssier R.,
nIFTy galaxy cluster simulations II: radiative models, MNRAS, 459, 2973

[107] Sembolini F., Yepes G., Pearce F., **Knebe A.**, et al., (23 more co-authors),
nIFTy galaxy cluster simulations I: dark-matter and non-radiative models, MNRAS, 457, 4063

[106] Cui W., Power C., Biffi V., Borgani S., Murante G., Fabjan D., Knebe A., Lewis G.F., Poole G.,
How does our choice of observable influence our estimation of the centre of a galaxy cluster? Insights from cosmological simulations, MNRAS, 456, 2566

2015

[105] R. Smith, R. Sanchez-Janssen, M.A. Beasley, G.N. Candlish, B.K. Gibson, T.H. Puzia, J.Janz, **A. Knebe**, J.A.L. Aguerri, T. Lisker, G. Hensler, M. Fellhauer, L. Ferrarese, S.K. Yi,
The Sensitivity of Harassment to Orbit: Mass Loss from Early-Type Dwarfs in Galaxy Clusters, MNRAS, 454, 2502

[104] Behroozi P., **Knebe A.**, Pearce F.R., Elahi P., Han J., Lux H., Mao Y.-Y., Muldrew S.I., Potter D., Srisawat C.
Major Mergers Going Notts: Challenges for Modern Halo Finders, MNRAS, 454, 3020

[103] Elahi P., Lewis G.F., Power C., Carlesi E., **Knebe A.**,
Hidden from View: Coupled Dark Sector Physics and Small Scales, MNRAS, 452, 1341

[102] Chuang C.-H., Zhao C., Prada F., Munari E., Avila S., Izard A., Kitaura F.-S., Manera M., Monaco P., Murray S., **Knebe A.**, Scoccola C., Yepes G., Garcia-Bellido J., Marin F., Mueller V., Skibba R., Crocce M., Fosalba P., Gottloeber S., Klypin A., Power C., Tao C., Turchaninov V.,
nIFTy Cosmology: Galaxy/halo mock catalogue comparison project on clustering statistics, MNRAS, 452, 686

[101] **Knebe A.**, et al. (35 co-authors),
nIFTy Cosmology: a comparison of galaxy formation models, MNRAS, 451, 1856

[100] Avila S., Murray S., **Knebe A.**, Power C., Robotham A., Garcia-Bellido J.,
HALOGEN: a new tool for the fast generation of mock halo catalogues, MNRAS, 450, 1856

[99] Gillet N., Ocvirk P., **Knebe A.**, Libeskind N., Yepes G., Gottloeber S., Hoffman Y.,
Vast planes of satellites in a high resolution simulation of the Local Group: comparison to Andromeda, ApJ, 800, 34

[98] Hotchkiss S., Nadathur S., Gottloeber S., Iliev I.T., **Knebe A.**, Watson W., Yepes G.,
The Jubilee ISW Project II: observed and simulated imprints of voids and superclusters on the cosmic microwave background, MNRAS, 446, 1321

[97] Sutter P.M., Carlesi E., Wandelt B.D., **Knebe A.**,
On the observability of coupled dark energy with cosmic vois, MNRAS, 446, L1

2014

[96] Lee J., Yi S.K., Elahi P.J., Thomas P.A., Pearce F.R., Behroozi P., Han J., Helly J., Jung I., **Knebe A.**, Mao Y.-Y., Onions J., Rodriguez-Gomez V., Schneider A., Srisawat C., Tweed D.,
Sussing Merger Trees: the impact of halo merger trees on galaxy properties in a semi-analytical model, MNRAS, 445, 4197

[95] Ocvirk P., Gillet N., Aubert D., **Knebe A.**, Libeskind N., Chardin J., Gottloeber S., Yepes G., Hoffman Y.,
The reionization of galactic satellite populations, ApJ, 794, 20

[94] Sutter P.M., Elahi P., Falck B., Onions J., Hamaus N., **Knebe A.**, Srisawat C., Schneider A.,
The life and death of cosmic voids, MNRAS, 445, 1235

[93] Libeskind N., **Knebe A.**, Hoffman Y., Gottloeber S.,
The universal nature of subhalo accretion, MNRAS, 433, 1274

[92] Hoffman K., Planelles S., Gaztanaga E., **Knebe A.**, Pearce F., Lux H., Onions J., Muldrew S., Elahi P., Behroozi P., Ascasibar Y., han J., Maciejewski M., Merhcan M., Neyrinck M., Ruiz A., Sgro M.
Subhaloes going Notts: subhaloes as tracers of the dark matter halo shape, MNRAS, 442, 1197

[91] Avila S., **Knebe A.**, Pearce F., Schneider A., Srisawat C., Thomas P., Behroozi P., Elahi P., Han J., Mao Y.-Y., Onions J., Rodriguez-Gomez V.,
Sussing Merger Trees: the influence of the halo finder, MNRAS, 441, 3488

[90] Di Cintio A., Brook C.B., Dutton A.A., Maccio A.V., Stinson G.S., **Knebe A.**,
A mass-dependent density profile for dark matter haloes including the influence of galaxy formation, MNRAS, 441, 2986

[89] Brook C.B., Di Cintio A., **Knebe A.**, Gottloeber S., Hoffman Y., Yepes G.,
The stellar-to-halo mass relation for Local Group galaxies, ApJL, 784, L14

[88] Carlesi E., **Knebe A.**, Lewis G.F.L., Yepes G.,
Hydrodynamical simulations of coupled and uncoupled quintessence models II: galaxy clusters, MNRAS, 439, 2958

[87] Carlesi E., **Knebe A.**, Lewis G.F.L., Wales S., Yepes G.,
Hydrodynamical simulations of coupled and uncoupled quintessence models I: large-scale structure and the cosmic web, MNRAS, 439, 2943

[86] Pujol A., Gaztanaga E., Giocoli C., **Knebe A.**, Pearce F.R., Skibba R.A., Ascasibar Y., Behroozi P., Elahi P., Han J., Lux H., Muldrew S.I., Neyrinck M., Onions J., Potter D., Tweed D., MNRAS, 438, 3205
Subhaloes gone Notts: the clustering properties of subhaloes, MNRAS, 438, 3205

[85] Wojtak R., **Knebe A.**, Watson W.,Iliev I.,Hess S.,Rapetti D.,Yepes G., Gottloeber S.,
Cosmic variance of the local Hubble flow in large-scale cosmological simulations, MNRAS, 438, 1805

[84] Watson W., Diego J.M., Gottloeber S., Iliev I., **Knebe A.**, Martinez-Gonzalez E., Yepes G., Barreiro R.B., Gonzalez-Nuevo J., Hotchkiss S., Marcos-Caballero A., Nadathur S., Viela P.,
The Jubilee ISW Project I: simulated ISW and weak lensing maps and initial power spectra results, MNRAS, 438, 412

[83] Watson W., Iliev I., Diego J.M., Gottloeber S., **Knebe A.**, Martinez-Gonzalez E., Yepes G.,
Statistics of extreme objects in the Jubilee simulation, MNRAS, 437, 3776

[82] Di Cintio A., Brook C.B., Maccio A.V., Stinson G.S., **Knebe A.**, Dutton A.A., Wadsley J.,
The dependence of dark matter profiles on the stellar to halo mass ratio: a prediction for cusps vs cores, MNRAS, 437, 415

2013

[81] Ocvirck P., Aubert D., Chardin J., **Knebe A.**, Libeskind N., Gottloeber S., Yepes G., Hoffman Y.,
Simulations of the reionization of an isolated Milky Way-M31 galaxy pair, ApJ, 777, 51

[80] Hellwing W., Knollmann S., **Knebe A.**, Juszkiewicz R.,
Dark matter haloes as probes of modified gravity, JCAP10(2013)012

[79] Srisawat C., **Knebe A.**, Pearce F.R., Schneider A., Thomas P.A., Behroozi P., Dolag K., Elahi P.J., Han J., Helly J., Jing Y., Jung I., Lee J., Mao Y.-Y., Onions J., Rodriguez-Gomez V., Tweed D., Yi S.K.,
Sussing Merger Trees: The Merger Trees Comparison Project, MNRAS, 436, 150

[78] **Knebe A.**, et al. (34 co-authors),
Structure Finding in Cosmological Simulations: The State of Affairs, MNRAS, 435, 1618

[77] Libeskind N., Di Cintio A., **Knebe A.**, Yepes G., Gottloeber S., Steinmetz M., Hoffman Y., Martinez-Vaquero L.,
Cold vs. Warm Dark Matter Simultions of a Galaxy Group, PASA, 30, 39

[76] Elahi P., Han J., Lux H., Ascasibar Y., Behroozi P., **Knebe A.**, Muldrew S.I., Onions J., Pearce F.,
Streams going Notts: the tidal debris finder comparison project, MNRAS, 433, 1537

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2009

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1998

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1995

[1] **Knebe A.**, *Lösungen der Dirac-Gleichnug für semi-empirische Zentralfelder*, diploma thesis (MSc), Kiel, Germany

CONFERENCES & TALKS

colloquia

12/2013 "Constrained Local Universe Simulations", **Barcelona, Spain**
03/2013 "Constrained Local Universe Simulations", **Perth, Australia**
03/2013 "Constrained Local Universe Simulations", **Sydney, Australia**
04/2011 "Near-Field Cosmology, a theoretician's point of view", **Salamanca, Spain**
02/2011 "Constrained Local Universe Simulations", **Cambridge, UK**
06/2010 "Constrained Local Universe Simulations", **Vienna, Austria**
06/2009 "Near-Field Cosmology, a theoretician's point of view", **Valencia, Spain**
05/2008 "Near-Field Cosmology, a theoretician's point of view", **Zürich, Switzerland**
04/2008 "Finding Dark Matter Halos in Cosmological Simulations", **Warsaw, Poland**
04/2008 "Near-Field Cosmology, a theoretician's point of view", **Warsaw, Poland**
03/2008 "Near-Field Cosmology, a theoretician's point of view", **UCLan, UK**
04/2007 "Near-Field Cosmology, a theoretician's point of view", **Bonn, Germany**
12/2006 "Satellite Trek: integral-space, the final fontier?", **Swinburne Uni, Australia**
12/2004 "Satellite Galaxies in Dark Matter Halos", **CEA Saclay, France**
06/2004 "Evolution of Galaxy Cluster Substructure", **UAM Madrid, Spain**
06/2004 "Evolution of Galaxy Cluster Substructure", **Durham University, UK**
06/2004 "`MLAPM`, a *C*-code for cosmological simulations", **Durham University, UK**
05/2004 "Dynamics of Cluster Substructure", **ANU Canberra, Australia**
01/2004 "Revolutions of Satellite Galaxies", **AIP, Germany**
05/2003 "MONDian Cosmological Simulations", **Monash University, Australia**
04/2003 "MONDian Cosmological Simulations", **Melbourne University, Australia**
11/2001 "Warm Dark Matter Models", **Swinburne University, Australia**
06/2001 "Warm Dark Matter Models", **UAM Madrid, Spain**
10/2000 "Cosmological N-body Simulations", **University of Sussex, UK**
04/1999 "Virialisation of Groups & Clusters of Galaxies", **University of Oxford, UK**

conferences

Talks

03/2017 "Mocking Astrophysics",
Mock Perth: Challenges for Simulations in the Era of Surveys, **Perth, Australia**

11/2015 "nIFTy Cosmology",
Euclid CSWG meeting, **Barcelona, Spain**

06/2014 "Halo Finders & Tree Makers",
Semianalytic models and hydrodynamic simulations, **Marseille, France**

11/2013 "The response of dark mater haloes to baryonic physics",
9th MultiDark workshop, **Alcala de Henares, Spain**

09/2013 "Structure Finding in Cosmological Simulations: The State-of-Affairs",
Exascale Computing in Astrophysics, **Ascona, Switzerland**

07/2013 "MergerTree: a tool for constructing merger trees in cosmological simulations",
Sussing Merger Trees workshop, **Midhurst, UK**

04/2013 "The Halo-Finder Comparison Project",
8th MultiDark workshop, **Granada, Spain**

03/2013 "Structure Finding in Cosmological Simulations",
Synthetic Universes for Future Surveys, **Perth, Australia**

11/2012 "MultiDark CLUES",
7th MultiDark workshop, **Barcelona, Spain**

07/2012 "The state of affairs of halo finding",
Joint Euclid CSWG-OUSIM meeting, **Barcelona, Spain**

05/2012 "AHF: the AMIGA Halo Finder",
Subhaloes going Notts workshop, **Dovedale, UK**

04/2012 "Haloes going MAD",
MPA-IFT Spring Workshop, **Miraflores de la Sierra, Spain**

06/2010 "Luminosities of Backsplash Galaxies",
CLUES meeting, **Madrid, Spain**

05/2010 "Haloes going MAD – Why? What? And How?",
Haloes going MAD workshop, **Madrid, Spain** (organizer)

09/2008 "The correlation between spin parameter and halo mass",
JENAM 2008, **Vienna, Austria** (co-organizer)

07/2008 "Dark Matter Haloes in Cosmological Simulations",
Frontiers in Computational Astrophysics, **Ascona, Switzerland**

08/2007 "Dark Matter in Galaxies: A Defense of ΛCDM",
Dynamics of Galaxies, **St. Petersburg, Russia**

04/2006 "The Dynamics of Satellite Galaxies",
Galaxies in the Cosmic Web, **NMSU, Las Cruces, USA**

07/2005 "Galactic Haloes in MONDian Cosmology",
Mass Profiles and Shapes of Cosmological Structures, **IAP Paris, France**

04/2004 "Newtonian *N*-body Dynamics",
Gravity 2004, **Sydney University, Australia**

07/2003 "Galaxy Threshing",
Galactic Chemodynamics, **Swinburne University, Australia**

06/2003 "Galaxy Threshing",
The Local Group as a Cosmological Training Sample, **Potsdam, Germany**

01/2003 "Virtual Observatory: extension to theory",
Observing the Theoretical Universe, **Sydney, Australia**

07/2002 "Non-Standard Structure Formation Scenarios",

36th annual meeting of the Australian Society of Astrophysics, **Australia**

07/2002 "Satellite Galaxies in Non-Standard Cosmologies",
Galaxy Evolution: From Approaches to Models, **Kiel, Germany**

02/2002 "Cosmological *N*-body Simulations",
Theoretical Astrophysics in Australia, **Monash University, Australia**

09/2001 "`MLAPM`–a new C code for Cosmological Simulations",
Hydrodynamical Simulations of Galaxy Assembly, **Madrid, Spain** (co-organizer)

08/1998 "Formation and Virialisation of Galaxy Clusters",
New Trends in Astrophysics & Cosmology, **Bad Honnef, Germany**

06/1998 "Formation of Groups & Clusters of Galaxies",
From Stars to Galaxies to the Universe, **Ringberg Castle, Germany**

Poster

04/2002 "Top-Down Fragmentation of WDM Filaments",
Galaxy Evolution: Theory & Observations, **Cozumel, Mexico**

08/2000 "`MLAPM` – a new C code for Cosmological Simulation",
Computational Cosmology, **University of Victoria, Canada**

07/1997 "Galaxy Clusters in Cosmological Simulations",
Large Scale Structure: Tracks & Traces, **Potsdam, Germany**

outreach

2013-2017 annual presentation of the Department of Theoretical Physics @ UAM
to high-school (twice a year) and first year physics students (once a year)

07/2012 "La historia del Universo", **Astronomia en al Siglo XXI, Madrid**
10/2008 "Das Universum: Anfang vom Ende?", **Insulaner Planetarium, Berlin**
09/2008 "Das Universum: Anfang vom Ende?", **TU Berlin, Germany**
03/2008 "Das Universum: Anfang vom Ende?", **Schülercampus Brandenburg**
02/2008 "Das Universum: Anfang vom Ende?", **Kopernikus Gymnasium, Berlin**
09/2007 "Das Universum im Computer", **Day of Open House, AIP, Germany**
02/2007 "Das Universum im Computer", **Urania Berlin e.V., Germany**
09/2006 "Das Universum im Computer", **Technical University Berlin, Germany**
09/2006 "Das Universum im Computer", **Day of Open House, AIP, Germany**
07/2006 "Das Universum im Computer", **JUWEL Summer University, Potsdam**

TEACHING EXPERIENCE[§]

classroom lecturing

since 2009 **Universidad Autonoma de Madrid**

- *Cosmology & The Early Universe* (MSc level)
  - WS 2015/16: 18h
  - SS 2009: 5 x 2h = 10h
- *Gravitational Lensing* (MSc level)
  - SS 2016: 4 x 2h = 8h
  - SS 2015: 4 x 2h = 8h
  - SS 2014: 4 x 2h = 8h
  - SS 2013: 5 x 2h = 10h
  - WS 2009/10: 5 x 2h = 10h
- *Computational Astrophysics* (MSc level)
  - SS 2016: 14 x 2h = 28h
  - WS 2013/14: 14 x 2h = 28h
  - WS 2012/13: 13 x 2h = 26h
  - WS 2011/12: 8 x 2h = 16h
  - WS 2010/11: 6 x 2h = 12h

June 2010 **Vienna University**

- *Cosmology* (MSc level)
  - June 2010: 8 x 2h = 16h

2005 – 2008 **Potsdam University**

- *Astronomy & Astrophysics I* (BSc level)
  - WS 2005/06: 8 x 2h = 16h
- *Cosmology & The Early Universe* (MSc level)
  - SS 2007: 2 x 2h = 4h
  - SS 2005: 6 x 2h = 12h
- *Computational Cosmology* (MSc level)
  - WS 2007/08: 15 x 2h = 30h
  - WS 2005/06: 15 x 2h = 30h

classroom total of 290h

lab courses

since 2009 **Universidad Autonoma de Madrid**

- *Computational Physics* (BSc level)
  - every academic year since 2009/10: 7x 30 x 2h = 420h

2007 – 2008 **Potsdam University**

- *Computational Cosmology* (MSc level)
  - WS 2008/09: *Semi-Analytical Galaxy Formation* (total of 90h)
  - SS 2007: *The starting redshift for simulations* (total of 90h)

lab total of 600h

[§] all scripts and exercises are available at `http://popia.ft.uam.es/aknebe`

teaching assistant/tutor

2001 – 2004 **Swinburne University**

- Supervising student projects
  - *Big Bang vs. Steady State theory*
  - *Software Simulations in Astrophysics*
  - *High-Energy Detectors*
  - *Search for extra-terrestrial Life*

1999 – 2001 **Oxford University**

- teaching undergraduates in Astronomy

1993 – 1996 **Christian-Albrechts-University, Kiel**

- tutoring undergraduates in theoretical physics & mathematics

student supervision

Ph.D.

11/2016 – present **Robert Mostoghiu** ***UAM***
- *Crystal Clear Clusters*

results (so far): paper in prep.

01/2015 – present **Doris Stoppacher** ***UAM***
- *Galaxy Surveys vs. Simulations*

results (so far): paper in prep.

10/2012 – 09/2016 **Santiago Avila Peres** ***UAM***
- *The accelerating Universe – Myth or Truth?*

results: 3 refereed paper

08/2010 – 07/2014 **Arianna Di Cintio** ***UAM***
- *Constrained Simulations of the Local Group*

results: 5 refereed paper

11/2010 – 05/2014 **Edoardo Carlesi** ***UAM***
- *Structure Formation in Models with coupled Dark Matter-Dark Energy*

results: 4 refereed paper

11/2006 – 12/2009 **Claudio Llinares** ***AIP***
- *Simulations of the Universe using Modified Newtonian Dynamics*

results: 4 refereed paper

06/2005 – 06/2009 **Kristin Riebe (ne. Warnick)** ***AIP***
- *Satellite galaxies in cosmological dark matter haloes*

results: 3 refereed paper

01/2006 – 04/2009 **Steffen Knollmann** ***AIP***
- *AMIGA: Adaptive Mesh Investigations of Galaxy Assembly*

results: 4 refereed paper

01/2002 – 06/2005 **Stuart Gill** ***Swinburne University***
- *Satellite Galaxies in Cosmological Dark Matter Halos*

results: 6 refereed papers

M.Sc./Diploma

11/2016 – 09/2017 **Jose Ortuno** ***UAM***

- *Crystal Clear Clusters*

results: paper in prep.

11/2015 – 09/2016 **Alejandro Guerrero** ***UAM***

- *Simulations of Planet Formation*

results: paper in prep.

11/2014 – 07/2015 **Jose Luis Bernal** ***UAM***

- *Separating cosmic expansion from growth*

results: 1 refereed paper

11/2013 – 10/2014 **Juan Biel** ***UAM***

- *Merger Rates in Cosmological Simulations*

results: MSc thesis

11/2013 – 10/2014 **Fernando Campos** ***UAM***

- *AHF-2*

results: software tool

01/2012 – 09/2012 **Pedro Alonso Pilicio** ***UAM***

- *Lentes Gravitacionales*

results: software tool

04/2008 – 04/2009 **Timur Doumler** ***AIP***

- *Cosmological Magneto-Hydrodynamics*

results: 1 refereed paper

02/2006 – 07/2007 **Bastian Arnold** ***AIP***

- *Satellite galaxies in Warm Dark Matter Cosmologies*

results: 1 refereed paper

Ph.D. *(co-supervision)*

05/2007 – 06/2007 **Nadia Draganova** ***AIP***

- *The satellite galaxy – subhalo connection*

results: 1 refereed paper

07/2003 – 06/2007 **Janne Holopainen** ***Tuorla Observatory***

- *Strong gravitational lensing in triaxial Dark Matter Halos*

results: 2 refereed papers

10/2000 – 05/2001 **Asim Mahmood** ***Oxford University***

- *Merger Histories in Warm Dark Matter Structure Formation Scenarios*

results: 1 refereed paper

10/1999 – 05/2001 **Ranty Islam** ***Oxford University***

- *Bumpy Power Spectra and Galaxy Clusters*

results: 2 refereed papers

work experience students

08/2005 – 09/2005 **Volkmar Wiessner** ***AIP***

- *Analytical study of triaxial vs. spherical Dark Matter Halos*

results: 1 refereed paper

12/2002 – 02/2003 **Kylie Nankervis** ***Swinburne University***

- *`NFWtool`: setting up Dark Matter Halos for `MLAPM`*

results: software tool

12/2001 – 02/2002 **Brett Little** ***Swinburne University***

- *Warm Dark Matter versus Bumpy Power Spectra*

results: 1 refereed paper