

## A/Prof. Alexander Knebe

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nationality: German  
date of birth: 31/01/1970

## CURRICULUM VITAE

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### summary

#### Degrees:

07/2011	Accreditation as Professor "Titular"	ANECA <sup>1</sup> , 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: (as obtained from ADS)

- 127 peer-reviewed publications (of which 32 are 1<sup>st</sup> author), 2 papers submitted
- >4600 citations
- h-index 36

#### Presentations:

- 26 colloquia talks
- 29 oral presentations at international meetings (incl. several reviews)

#### Teaching:

- several full courses both at BSc and MSc level (totalling to more than 1000h)
- coordination of Astrophysics speciality of MSc at UAM

#### Supervision:

- 7 PhD students (+2 on-going), 8 MSc students (+1 on-going)
- 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, MINECO, ANPCYT)

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<sup>1</sup> Agencia Nacional de Evaluación de la Calidad y Acreditación

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## 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): **38 refereed paper, 2 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

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- 07/2011 Accreditation as Associate Professor** *ANECA<sup>2</sup>, 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)

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<sup>2</sup> Agencia Nacional de Evaluación de la Calidad y Acreditación, <http://www.aneca.es>

## **professional activities and services**

### **referee for...**

- Ministerio de Economía y Competitividad (Spain)
- Deutsche Forschungs-Gemeinschaft (German Science Foundation)
- Swiss National Science Foundation
- Agencia Nacional de Promoción Científica y Tecnología (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 2018: Co-PI of [CLUES](#) project
  - since 2010: PI of [Mocking Astrophysics](#) program
  - since 2010: *Cosmological Simulations Working Group* for Euclid<sup>3</sup>  
(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

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

### **workshop organisation (SOC)**

- 06/2018: workshop [Glenfiddling Galaxy Clusters](#), Edinburgh, UK
- 09/2017: conference [Fundamental Cosmology](#), Teruel, 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 [nFTy 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 outgoing and incoming Erasmus students at UAM
- since 2015: coordinator of MSc in Theoretical Physics (astrophysics part) 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**

- 2018-21: Adjunct Professor, University of Western Australia, Australia
- 2005-08: Adjunct Research Fellow, Swinburne University, Australia

## competitive grants and awards

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### ***principal investigator:***

- 06/2017      **workshop funding**      *LACEGAL (EU funding)*  
▪ “Crystal Clear Clusters”<sup>4</sup>  
grant volume: **EUR 10.000**
- 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”<sup>5</sup>  
grant volume: **EUR 30.000**
- 05/2010      **workshop funding**      *ASTROSIM (EU funding)*  
▪ “Haloes going MAD”<sup>6</sup>  
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**

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<sup>4</sup> <http://popia.ft.uam.es/CrystalClearClusters>

<sup>5</sup> <http://popia.ft.uam.es/nIFTyCosmology>

<sup>6</sup> <http://popia.ft.uam.es/HaloesGoingMAD>

## **co-investigator:**

### **Research Grants:**

01/2017-12/2020	<i>"LACEGAL: LatinAmericanChineseEuropean Galaxy FormationNetwork"</i> PI: Carlton Baugh, H2020-RISE (EU),	<b>EUR 1.350.000</b>
01/2014-12/2017	<i>"Elusives" Initial Training Network</i> PI: Belen Gavela, H2020-ITN (EU, No 674896),	<b>EUR 3.800.000</b>
01/2014-12/2017	<i>"INVISIBLESplus"</i> PI: Belen Gavela, H2020-RISE (EU, No 690575),	<b>EUR 2.000.000</b>
01/2014-12/2017	<i>"Orbits and Interactions of Satellites: a fundamental test of cosmology"</i> PI: Chris Power, ARC (Australia, DP140100198),	<b>AUD 360.000</b>
01/2013-12/2016	<i>"Observing the synthetic universe: revealing the dark cosmos"</i> PI: Geraint Lewis, ARC (Australia, DP130100117),	<b>AUD 390.000</b>
01/2013-12/2016	<i>"The MareNostrum Numerical Cosmology Project II"</i> PI: Gustavo Yepes, MINECO (Spain, AYA2012-31101),	<b>EUR 290.000</b>
12/2011-12/2015	<i>"INVISIBLES" Initial Training Network"</i> PI: Belen Gavela, FP7-PEOPLE (EU, No 289442),	<b>EUR 4.000.000</b>
12/2009-12/2014	<i>"MultiDark: Multimessenger Approach for Dark Matter Detection"</i> PI: Caros Munoz, MINECO (Spain, CSD2009-00064),	<b>EUR 3.200.000</b>
10/2009-09/2013	<i>"Astrofisica y Desarrollos tecnologicos en la Comunidad de Madrid"</i> PI: Miguel Mas, Comunidad Madrid (Spain),	<b>EUR 900.000</b>
01/2010-12/2012	<i>"The MareNostrum Numerical Cosmology Project"</i> PI: Gustavo Yepes, MICINN (Spain, AYA2009-13875-C03-02),	<b>EUR 370.000</b>
01/2010-12/2012	<i>"Formación y Evolución de Galaxias en un Contexto Cosmológico desde las Simulaciones Numéricas"</i> PI: Rosa Dominguez, MICINN (Spain, AYA2009-12792-C03-03),	<b>EUR 240.000</b>

### **Workshop Funds:**

07/2013	<i>"Sussing Merger Tree"</i>	(COSMOCOMP, EU)	<b>EUR 20.000</b>
05/2012	<i>"Subhaloes going Notts"</i>	(COSMOCOMP, EU)	<b>EUR 20.000</b>

## Supercomputing Times:

10/2017-10/2018	<i>“UNITSIM” project</i> (PRACE, EU)	<b>25 mio. CPU hours</b>
05/2016-12/2017	<i>“Down to the Dwarfs”</i> (PRACE, EU)	<b>25 mio. CPU hours</b>
11/2012-10/2013	<i>“Our Neighbourhood in the Universe: from first stars to present day”</i> (PRACE, EU)	<b>26 mio. CPU hours</b>
05/2011-04/2012	<i>“Large-scale simulations of galaxies in the high-z universe: probing the epoch of reionization”</i> (PRACE, EU)	<b>5 mio. CPU hours</b>
08/2011-12/2011	<i>“GALACTICA: GALaxies interACTing In a Cosmological hAbitat”</i> (BSC, Spain)	<b>0.8 mio. CPU hours</b>
01/2008-12/2017	<i>“Galaxy formation at different epochs and in different environenmts”</i> (PRACE, EU)	<b>25 mio. CPU hours</b>

## Travel Grants:

05/2012-08/2012	Arianna Di Cintio's 3-months visit at the AIP working with Stefan Gottloeber and Noam Libeskind	grant volume (UAM, Spain): <b>EUR 1.800</b>
03/2012-06/2012	Edoardo Carlesi's 3-months visit at the University of Sydney working with Geraint Lewis	grant volume (UAM, Spain): <b>EUR 2.400</b>
05/2009-09/2009	Timur Doumler's 4-months visit at Universidad Autonoma de Madrid to work on the development of AHF	grant volume (ASTROSIM, EU): <b>EUR 2.000</b>
06/2008-07/2008	Claudio Llinares' 2-months visit at St. Andrew's University to work on galactic dynamics under MOND	grant volume (HPC-Europa, EU): <b>EUR 1.300</b>
08/2007-11/2007	Claudio Llinares 3-months visit at St. Andrew's University to work on MONDian cosmological simualtions	grant volume (HPC-Europa, EU): <b>EUR 2.000</b>
01/2007-03/2007	Steffen Knollmann's 3-months visit at Edinburgh University to work on MPI-paraellisation	grant volume (HPC-Europa, EU): <b>EUR 2.000</b>



# PUBLICATIONS

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## refereed journals

### submitted

- [129] Mostoghiu R., Di Cintio A., **Knebe A.**, Libeskind N., Minchev I., Brook C.B.,  
*CLUES about M33: the reversed radial stellar age gradient in the outskirts of Triangulum galaxy*, MNRAS
- [128] Cui W., **Knebe A.**, et al. (35 more co-authors)  
*The Three Hundred Project - I: A large catalogue of theoretically modelled galaxy clusters for cosmological and astrophysical applications*, MNRAS

### 2018

- [127] Asquith R., Pearce F., Almaini O., **Knebe A.**, et al. (23 more co-authors)  
*Cosmic CARNage II: the evolution of the galaxy stellar mass function in observations and galaxy formation models*, MNRAS, in press
- [126] 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, 477, 867
- [125] **Knebe A.**, et al. (33 co-authors)  
*Cosmic CARNage: on the calibration of galaxy formation models*, MNRAS, 475, 2936
- [124] **Knebe A.**, et al. (20 co-authors)  
*MultiDark Galaxies: data release and first results*, MNRAS, 474, 5206
- [123] 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, 473, 68
- [122] Libeskind N. et al. (30 co-authors),  
*Tracing the Cosmic Web*, MNRAS, 473, 1195

### 2017

- [121] 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, 472, 4099
- [120] Snaith O.N., Bailin J., **Knebe A.**, Stinson G., Wadsley J., Couchman H.,  
*Halo at the ragged edge:  $R_{vir}$  is the interface between the halo and the LSS*, MNRAS, 472, 2694
- [119] Maji M., Zhu Q., Li Y., Charlton, Hernquist L., **Knebe A.**,  
*The formation and evolution of star clusters in interacting galaxies*, ApJ, 844, 108
- [118] Pujol A., et al. (37 co-authors)  
*nFTy Cosmology: the clustering consistency of galaxy formation models*, MNRAS, in press
- [117] 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
- [116] 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.,  
*nFTy galaxy cluster simulations V: comparison of the cluster infall region*, MNRAS, 464, 2027

## 2016

- [115] 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 reionisation and galaxy formation in the Local Universe*, MNRAS, 463, 1462
- [114] 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
- [113] Carlesi E., Sorce J., Hoffman Y., Gottloeber S., Yepes G., Libeskind N., Pilipenko S., **Knebe A.**, Courtois H., Tully R.B., Steinmetz M., *Constrained Local Universe Simulations: a local group factory*, MNRAS, 458, 900
- [112] 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., Saro A., Teyssier R., Thacker R., *nFTy galaxy cluster simulations IV: quantifying the influence of baryons on halo properties*, MNRAS, 458, 4052
- [111] 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., *nFTy galaxy cluster simulations III: the similarity & diversity of galaxies & subhaloes*, MNRAS, 458, 1096
- [110] 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., *nFTy galaxy cluster simulations II: radiative models*, MNRAS, 459, 2973
- [109] Sembolini F., Yepes G., Pearce F., **Knebe A.**, et al., (23 more co-authors), *nFTy galaxy cluster simulations I: dark-matter and non-radiative models*, MNRAS, 457, 4063
- [108] 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

- [107] R. Smith, R. Sanchez-Janssen, M.A. Beasley, G.N. Candlish, B.K. Gibson, T.H. Puzia, J. Janz, **A. Knebe**, J.A.L. Aguerra, 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
- [106] 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
- [105] Elahi P., Lewis G.F., Power C., Carlesi E., **Knebe A.**, *Hidden from View: Coupled Dark Sector Physics and Small Scales*, MNRAS, 452, 1341
- [104] 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
- [103] **Knebe A.**, et al. (35 co-authors),  
*nIFTy Cosmology: a comparison of galaxy formation models*, MNRAS, 451, 1856
- [102] 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
- [101] 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
- [100] 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
- [99] Sutter P.M., Carlesi E., Wandelt B.D., **Knebe A.**,  
*On the observability of coupled dark energy with cosmic voids*, MNRAS, 446, L1
- 2014**
- [98] 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
- [97] 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
- [96] 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
- [95] Libeskind N., **Knebe A.**, Hoffman Y., Gottloeber S.,  
*The universal nature of subhalo accretion*, MNRAS, 433, 1274
- [94] 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., Merhan M., Neyrinck M., Ruiz A., Sgro M.  
*Subhaloes going Notts: subhaloes as tracers of the dark matter halo shape*, MNRAS, 442, 1197
- [93] 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
- [92] 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
- [91] 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
- [90] Carlesi E., **Knebe A.**, Lewis G.F.L., Yepes G.,  
*Hydrodynamical simulations of coupled and uncoupled quintessence models II: galaxy clusters*, MNRAS, 439, 2958
- [89] 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
- [88] 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
- [87] 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
- [86] 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
- [85] 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
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## **2005**

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**1998**

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**1995**

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## CONFERENCES & TALKS

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### colloquia

- 03/2018** “Mocking Astrophysics”, **Perth, Australia**
- 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 frontier?”, **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

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### 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  $\Lambda$ CDM”,  
*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”,  
*36<sup>th</sup> 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**

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- 03/2018** “Life, the Universe and Everything”, general outreach talk, **UAM, Madrid**
  - 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 assistant/tutor**

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- 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	<b>Robert Mostoghiu</b> <ul style="list-style-type: none"><li>• <i>Crystal Clear Clusters</i></li></ul>	<b>UAM</b> results (so far): paper in prep.
01/2015 – present	<b>Doris Stoppacher</b> <ul style="list-style-type: none"><li>• <i>Galaxy Surveys vs. Simulations</i></li></ul>	<b>UAM</b> results (so far): paper in prep.
10/2012 – 09/2016	<b>Santiago Avila Peres</b> <ul style="list-style-type: none"><li>• <i>The accelerating Universe – Myth or Truth?</i></li></ul>	<b>UAM</b> results: 3 refereed paper
08/2010 – 07/2014	<b>Arianna Di Cintio</b> <ul style="list-style-type: none"><li>• <i>Constrained Simulations of the Local Group</i></li></ul>	<b>UAM</b> results: 5 refereed paper
11/2010 – 05/2014	<b>Edoardo Carlesi</b> <ul style="list-style-type: none"><li>• <i>Structure Formation in Models with coupled Dark Matter-Dark Energy</i></li></ul>	<b>UAM</b> results: 4 refereed paper
11/2006 – 12/2009	<b>Claudio Llinares</b> <ul style="list-style-type: none"><li>• <i>Simulations of the Universe using Modified Newtonian Dynamics</i></li></ul>	<b>AIP</b> results: 4 refereed paper
06/2005 – 06/2009	<b>Kristin Riebe (ne. Warnick)</b> <ul style="list-style-type: none"><li>• <i>Satellite galaxies in cosmological dark matter haloes</i></li></ul>	<b>AIP</b> results: 3 refereed paper
01/2006 – 04/2009	<b>Steffen Knollmann</b> <ul style="list-style-type: none"><li>• <i>AMIGA: Adaptive Mesh Investigations of Galaxy Assembly</i></li></ul>	<b>AIP</b> results: 4 refereed paper
01/2002 – 06/2005	<b>Stuart Gill</b> <ul style="list-style-type: none"><li>• <i>Satellite Galaxies in Cosmological Dark Matter Halos</i></li></ul>	<b>Swinburne University</b> results: 6 refereed papers

## M.Sc./Diploma

11/2017 – 09/2018	<b>Bosco Rodriguez Crespo</b> <ul style="list-style-type: none"><li>• <i>Crystal Clear Clusters &amp; MultiDark Galaxies</i></li></ul>	<b>UAM</b> results: MSc thesis
11/2016 – 09/2017	<b>Jose Ortuno</b> <ul style="list-style-type: none"><li>• <i>Crystal Clear Clusters</i></li></ul>	<b>UAM</b> results: MSc thesis
11/2015 – 09/2016	<b>Alejandro Guerrero</b> <ul style="list-style-type: none"><li>• <i>Simulations of Planet Formation</i></li></ul>	<b>UAM</b> results: MSc thesis
11/2014 – 07/2015	<b>Jose Luis Bernal</b> <ul style="list-style-type: none"><li>• <i>Separating cosmic expansion from growth</i></li></ul>	<b>UAM</b> results: 1 refereed paper
11/2013 – 10/2014	<b>Juan Biel</b> <ul style="list-style-type: none"><li>• <i>Merger Rates in Cosmological Simulations</i></li></ul>	<b>UAM</b> results: MSc thesis
11/2013 – 10/2014	<b>Fernando Campos</b> <ul style="list-style-type: none"><li>• <i>AHF-2</i></li></ul>	<b>UAM</b> results: software tool
01/2012 – 09/2012	<b>Pedro Alonso Pilicio</b> <ul style="list-style-type: none"><li>• <i>Lentes Gravitacionales</i></li></ul>	<b>UAM</b> results: software tool
04/2008 – 04/2009	<b>Timur Doumler</b> <ul style="list-style-type: none"><li>• <i>Cosmological Magneto-Hydrodynamics</i></li></ul>	<b>AIP</b> results: 1 refereed paper
02/2006 – 07/2007	<b>Bastian Arnold</b> <ul style="list-style-type: none"><li>• <i>Satellite galaxies in Warm Dark Matter Cosmologies</i></li></ul>	<b>AIP</b> 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