

Jahresbericht 2012

Argelander–Institut für Astronomie
Rheinische Friedrich-Wilhelms-Universität Bonn

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1 Allgemeines

Geschichte: Die Astronomie entfaltete sich in Bonn seit der Berufung Argelanders (1836). Er errichtete die Sternwarte an der Poppelsdorfer Allee, die 1845 in Betrieb genommen wurde. Ab 1952 wurden die Teleskope zum neuen Observatorium Hoher List in die Eifel umgesiedelt. Mit den Beobachtungsmöglichkeiten für die Radiostrahlung (Errichtung des Radioobservatoriums auf dem Stockert 1956) und mit der Raumfahrt entwickelten sich Fachrichtungen, die zur Gründung des Radioastronomischen Instituts (1962), des Instituts für Astrophysik und Extraterrestrische Forschung (1964) und des Max-Planck-Instituts für Radioastronomie (1966) führten. 1973 bezogen die Institute gemeinsam das jetzt bestehende Gebäude. Am 1.1.2006 wurden die drei Universitätsinstitute zum Argelander-Institut für Astronomie zusammengeführt. Das Observatorium Hoher List wurde am 30.06.2012 vom AIfA getrennt und geschlossen. Damit orientiert sich das AIfA weg von der beobachtenden optischen Astronomie. Seit Oktober 2012 ist Kroupa Geschäftsführender Direktor.

Forschungsgruppen, welche 2012 am AIfA etabliert waren (Themengebiete werden in Englisch angegeben):

- Mm/submm Astronomy: Star formation, galaxy evolution, ISM in galaxies, observational cosmology (Frank Bertoldi).
- Gravitational Lensing and Cosmology: Studying Galaxies, Galaxy Clusters, and Cosmology with Weak Gravitational Lensing Magnification (Hendrik Hildebrandt: Emmy Noether Group).
- Stellar Astrophysics: The Evolution of Single and Binary Stars, Stellar Nucleosynthesis, Chemically peculiar stars, Globular clusters, Chemical evolution of the Galaxy, The progenitors of Gamma-Ray Bursts, Computational astrophysics (Robert Izzard).
- Radio- and X-ray Astronomy: The scientific interest of the group is focused onto two very different wavelength regimes. The combined analysis offers a wealth of information about the physical conditions of the objects of interest, ranging from the Milky Way to active galaxies (Jürgen Kerp).
- Galaxies: Structure and kinematics, interstellar and intergalactic magnetic fields (Uli Klein).
- Stellar Populations and Dynamics: Stellar populations, star formation, IMF, brown dwarfs, binary systems, dynamical evolution of star clusters, dense stellar systems, galactic dynamics, satellite galaxies, dark matter (Pavel Kroupa).

Stellar Astrophysics: the evolution of single and binary stars, nucleosynthesis, supernovae and gamma-ray bursts, and stellar and circumstellar hydrodynamics (Norbert Langer).

Large Scale Structure of the Universe: Cosmology, Galaxy Clustering, Dark Matter and Dark Energy, Physics of the Intergalactic Medium, Structure of Dark-Matter Halos and Galaxy Formation (Cristiano Porciani).

Dark Energy: cosmology, galaxy clusters, and supermassive black holes are studied over a range of wavelengths including X-ray, optical, and radio data (Thomas Reiprich).

Gravitational Lensing and Cosmology: Theory and observations of weak and cluster lensing, Dark matter and Dark Energy (Peter Schneider).

Stellar Evolution: Stellar evolution of low- and intermediate-mass stars, and hydrodynamical simulations of processes in stellar interiors (Richard Stancliffe: Sofja Kovalevskaja Award).

Milky Way Star Burst Clusters: Young Star Clusters, Initial Stellar Massfunction, Cluster dynamics, Near-Infraredastronomy and circumstellar disc survival (Andrea Stolte: Emmy Noether Group).

Radio Lenses: Utilising the new generation of radio telescopes for gravitational lens research (Olaf Wucknitz: Emmy Noether Group).

Technology Group: Electronic components for astronomical detectors are developed and built (Philipp Müller, Henning Poschmann).

“Bonn Shutter UG” (private company / University cooperation): Construction of the “Bonn Shutters” of various sizes are developed and built (Technology Group: Philipp Müller, Henning Poschmann).

Größere Forschungsvorhaben:

Die Forschergruppe 1254 “Magnetisation of Interstellar and Intergalactic Media: The Prospects of Low-Frequency Radio Observations” (Uli Klein, mit Rainer Beck, MPIfR) wurde für drei Jahre verlängert.

Der Verlängerungsantrag im Rahmen der “Exzellenzinitiative des Bundes und der Länder für eine Graduiertenschule in Physik und Astronomie” wurde zusammen mit Köln (Sprecherort) eingereicht und erfolgreich begutachtet und bewilligt (“Bonn-Cologne Graduate School of Physics and Astronomy”, BCGS).

Der Exzellenzcluster-Antrag 1076 im Rahmen der “Exzellenzinitiative des Bundes und der Länder”, “The Nature of Forces and Matter” der Fachgruppe Physik/Astronomie, wurde eingereicht, aber nicht erfolgreich begutachtet.

Wissenschaftler des AIfA sind beteiligt mit

vier ortsübergreifenden Teilprojekten am Transregionalen Sonderforschungsbereich TRR33 mit Heidelberg (Sprecherort) und München “The Dark Universe”,

drei Teilprojekten am Köln-Bonner Sonderforschungsbereich 956 “Conditions and Impact of Star Formation - Astrophysics, Instrumentation and Laboratory Research”,

vier Projekten am Schwerpunktprogramm 1573 “Physics of the Interstellar Medium”,

einem Projekt im Schwerpunktprogramm 1385 “The first 10 Million Years of the Solar System - a Planetary Materials Approach”.

Das AIfA hat eine Beteiligung am Euclid-Projekt (ESA) mit mehr als 1MEuro für 2012-2015.

Der Betrieb des deutschen ALMA Regional Center (ARC) Nodes und eines der Omega-CAM Datenzentren findet am AIfA statt. Zudem hat das AIfA eine Beteiligung am Betrieb des NANTEN2-Submillimeter-Teleskops in Chile und an der Vorbereitung des CCAT

(Cerro Chajnantor Atacama Telescope) Projekts, ist involviert bei der Vorbereitung der eROSITA- und EUCLID-Weltraummissionen und hat eine Beteiligung am zukünftigen “After Sloan-III” Spiders-Projekt.

Öffentlichkeitsarbeit: (Nadya Ben Bekhti, Michael Geffert)

Besuche von ca. 55 Schulklassen (Grund-, Mittel- und Oberstufe) im Raum Köln-Bonn;

Praktika für SchülerInnen und angehende StudentInnen;

Veranstaltungen, die als Seminar für Öffentlichkeitsarbeit durchgeführt wurden: Vergabe der Haribo-Fachpreise (Vorträge zu astronomischen Themen, Führung an unserem Teleskop), Lehrerfortbildung;

Veranstaltungen der Bonner Uni: Schnupper-Uni für Schülerinnen, Wissenschaftsrallye, Wissenschaftsnacht;

Nachwuchsveranstaltungen: taste MINT, NRW-Hochbegabtenakademie (10 Tage) mit hochbegabten SchülerInnen aus den Klassen 9 und 10, Einstieg Abi-Messe in Köln.

Zudem wurden mehrere öffentliche Vorträge zu verschiedenen Themen der Astronomie von Institutsmitgliedern gehalten.

Aktuelle Forschungsarbeiten sowie weitere Information über das AIfA sind auf dem Internet (etwa durch den arXiv-Preprintserver und der Home-Page des Instituts) verfügbar. Deshalb werden nachfolgend nur noch referierte Publikationen und Lehrbücher/Monographien aufgeführt.

1.1 Personalstand

1.2 Professoren

F. Bertoldi, R. Izzard (Alexander-von-Humboldt Foundation), U. Klein, P. Kroupa (Geschäftsführender Direktor), N. Langer (Alexander-von-Humboldt-Professor), C. Porciani (stellv. Geschäftsf. Direktor), T. Reiprich (Heisenberg-Professor), P. Schneider

1.3 Emeritierte Professoren

P.W. Blum, P. Brosche, K.S. de Boer, H.J. Fahr, E.H. Geyer, W. Kundt, U. Mebold, G. Pröbß, M. Römer, W. Seggewiß, H. Volland

Wissenschaftliche Mitarbeiter:

Dr. M. Albrecht, Dr. F. Alves, Dr. D. Applegate, Dr. A. Balaguera Antolinez, Dr. S. Banerjee, Dr. K. Basu, Dr. N. Ben Bekhti, Dr. J. Braithwaite, Dr. N. Castro, Dr. O. Cordes, Dr. T. Dermine, Dr. V. Duez, Dr. T. Erben, Dr. L. Fossati, Dr. M. Geffert, Dr. I. Georgiev, Prof. Dr. R. González Lópezlira, Dr. H. Hildebrandt, Dr. H. Israel, Dr. P. Kalberla, Priv.-Doz. Dr. J. Kerp, Dr. A. Küpper, Dr. H. Lau, Dr. L. Lovisari, Dr. A. Ludlow, Dr. J. Mackey (Humboldt Fellow), Dr. M. Maercker (ESO Fellow), Dr. B. Magnelli, Dr. O. Marggraf, Dr. L. Marian, Dr. S. Mohamed, Dr. S. Mühle, Dr. R. Nakajima, Dr. U. Naß, Dr. H. Neilson (Humboldt Fellow), Dr. F. Pacaud, Dr. G. Parmentier, Dr. J.-C. Passy, Dr. I. Petermann, Dr. J. Pflamm-Altenburg, Dr. S. Ramstedt, Dr. K. Reif, Dr. E. Romano-Diaz, Dr. R. Schaaf, Dr. T. Schrabback, Dr. X. Shi, Dr. M. Siewert, Dr. P. Simon, Dr. D. Sluse, Dr. R. Smith (Humboldt Fellow), Dr. V. Smolčić (ESO Fellow), Dr. M. Sommer (Nord), Dr. R. Stancliffe (Kovalevskaja Awardee), Dr. I. Stewart, Dr. A. Stolte (DFG/Emmy-Noether), Dr. T. Tauris, Dr. I. Thies, Dr. E. van Uitert, Dr. X. Wu (Humboldt Fellow), Dr. O. Wucknitz (DFG/Emmy-Noether), Dr. D. Xu (Humboldt Fellow), Dr. Y. Yang, Dr. S.-C. Yoon, Dr. Y. Zhang, Dr. J. Zönnchen

Doktoranden:

A. H. Abdullah, S. Anderl, L. Boldt, K. Borm, M. Brockamp, C. Brüns, A. Buddendiek, S. Burkutean, A. Böhnert, E. Carrillo, M. Compostella, J. Dabringhausen, M. de Lima Leal Ferreira, M. den Heijer, A. Doria, H. Eckmiller, A. Elia, S. Faridani, L. Flöer, N. González Jiménez, L. Grassitelli, M. Habibi, B. Hußmann, A. Istrate, B. Javanmardi, F. Kirsten, M. Klein, K. Köhler, A. Kozyreva, S. Kühnrich, F. Lüghausen, V. Lüghausen, H. Mahmoudian, P. Marchant Campos, S. Martin, D. Meyer, B. Miranda Ocejó, A. Nagarajan, S. Nasoudi Shoar, F. Navarrete Avendano, S. Oh, M. Pawlowski, A. Pérez Sánchez, J. Piel, J. Pollack, A. Purkayastha, M. Ramos Ceja, T. Röhser, N. Roth, H. Saghia, S. Salim, D. Sanyal, G. Schellenberger, F. Schneider, S. Sengupta, Z. Shafiee, Z. Sheikhabaee, M. Sokaliwska, D. Szécsi, M. Tomassetti, M. Trasatti, A. Tudorica, B. Vijaysarathy, P. Wilking

Diplomanden:

K. Enders-Brehm, M. Huhnen-Venedey, L. Klarmann, D. Kröll, M. Peuten, C. Schulz

Master of Science in Astrophysik (1st year)

M. Badea, M. Fuchs, C. Gette, L. Grygosor, T. Isken, C. Karoumpis, M. Kehl, M. Kierdorf, A. Krieger, O. Lux, D. Mülheims, C. Murugesan, B. Nikolic, R. Pandit, S. Rahimianshahreza, A. Rasikh, M. Rehak, S. Sreenivasan, S. Suri, M. Xiang

Master of Science in Astrophysik (2nd year)

T. Badescu, M. Borzyszkowski, N. Gupta, J. Ibañez Mejía, D. Keller, D. Klaes, M. Krucow, P. Lieberz, I. Mohammed, Y. Ordenes Briceno, T. Röhser, R. Röseler, G. Schellenberger, S. Sengupta, S. Thölken, A. Tudorica, R. Wollmann

Sekretariat und Verwaltung:

K. Biehl, E. Kramer, C. Stein-Schmitz (Geschäftsführung), E. Vasters

Technisches Personal:

A. Bödewig, Dr. C. McCain, Dipl.-Phys. P. Müller, Dipl.-Ing. H. Poschmann, F.-J. Willems

Studentische Mitarbeiter:

T. Badescu, D. Elsen, J. Erler, N. Gupta, D. Klaes, M. Kruckow, D. Markus, D. Mülheims, C. Schulz, A. Shymanskaya, S. Thölken S. Unruh, S. Werner

1.4 Personelle Veränderungen

Ausgeschieden:

Dr. M. Cantiello, Dr. T. Dermine, Dr. V. Duez, Dr. B. Famaey (Humboldt Fellow), Prof. Dr. R. González Lópezlira, Dr. H. Israel, Dr. A. Küpper, Dr. S. Mohamed, Dr. E. Moreno Mendez, Dr. H. Neilson (Humboldt Fellow), Dr. G. Parmentier, Dr. S. Ramstedt, Dr. K. Reif, Dr. X. Shi, Dr. O. Wucknitz (DFG/Emmy-Noether)

Neueinstellungen und Änderungen des Anstellungsverhältnisses:

Dr. D. Applegate, Dr. N. Castro, Dr. L. Fossati, Dr. H. Hildebrandt, Dr. B. Magnelli, Dr. J.-C. Passy, Dr. I. Petermann, Dr. R. Stancliffe (Kovalevskaja Awardee), Dr. I. Stewart, Dr. E. van Uitert, Dr. D. Xu (Humboldt Fellow), Dr. Y. Yang

1.5 Lehrtätigkeiten

Die Vorlesungsverzeichnisse können eingesehen werden unter <http://www.astro.uni-bonn.de/students/lecture/>.

2 Diplomarbeiten, Dissertationen, Habilitationen

2.1 Diplomarbeiten

Abgeschlossen:

K. Enders-Brehm: Veränderliche Sterne in der OB2 Assoziation

Laufend:

L. Klarmann: Heating of a disk of satellite galaxies around a major host galaxy

D. Kröll: Star Formation in the Galaxy M51a

M. Peuten: New Findings on the Negative Orbit Period Derivative of 4U 1820-30 in NGC 6624

C. Schulz: The frequency of star formation rates in a galaxy cluster assembly

2.2 Masterarbeiten

Abgeschlossen:

K. Borm: X-ray galaxy cluster observations with eROSITA

M. Borzyszkowski: The cosmological origins of cold dark matter halos

J. Ibañez Mejía: The Tayler instability in stars

D. Keller: Population synthesis of planetary nebulae

I. Mohammed: Cosmological constraints from galaxy cluster surveys

T. Röhser: The Milky Way windows to the distant universe

G. Schellenberger: Chandra X-ray study of a galaxy cluster sample

S. Sengupta: Nova re-accretion model for J-type carbon stars: a population synthesis study

A. Tudorica: Star formation history of the IKN dwarf spheroidal from optical-NIR photometry of its globular clusters

Laufend:

- T. Badescu: Optical observations of Ly-alpha emitters at redshift $z \approx 3$
- N. Gupta: Cosmological forecasts for the CCAT telescope
- D. Klaes: Illumination correction and photometric redshift estimation of galaxy clusters in KIDS data
- M. Kruckow: Massive stars in star clusters
- D. Lenz: Interaction of high-velocity clouds with the Milky Way galaxy
- P. Lieberz: Comparison of Analyzing Software for eRosita
- Y. Ordenes Briceno: Compact Stellar Systems as Tracers of Past Interactions
- R. Röseler: Constrained correlation functions in multi-dimensions
- S. Thölken: Suzaku X-ray study of galaxy cluster outskirts
- R. Wollmann: Large-scale galaxy-galaxy lensing and biasing of galaxies

2.3 Dissertationen

Abgeschlossen:

- H. Eckmiller: Testing X-Ray Scaling Relations with a Sample of Galaxy Groups and Detailed Analysis of Abell 2244 with Chandra and Suzaku
- A. Elia: Modelling the Power Spectrum in the Era of Precision Cosmology
- M. Marks: Dynamical fingerprints of star cluster formation
- S. Nasoudi Shoar: Small-scale studies of the Milky Way disc and halo gas with absorption-line spectroscopy
- J. Piel: Investigating galaxy clusters with weak gravitational lensing and X-rays
- X. Shi: Elimination of alignment systematics in higher-order shear correlations

Laufend:

- A. H. Abdullah: The alignment of spin vectors of spiral galaxies in filaments
- S. Anderl: Modelling shocks in the interstellar medium
- A. Böhnert: Non-parametric source reconstruction in strong gravitational lensing
- L. Boldt: Magnetohydrodynamics in stars
- K. Borm: X-ray galaxy cluster properties and cosmological constraints with eRosita
- M. Brockamp: Massive black holes in galaxies
- C. Brüns: Untersuchung der Struktur von elliptischen Galaxien mit Hilfe numerischer Simulationen
- A. Buddendiek: Analysis of optical data from the Kilo Degree Survey and application to the galaxy-galaxy lensing
- S. Burkutean: The Sunyaev-Zel'dovich effect in galaxy clusters with interferometry
- E. Carrillo: The dense gas in the Magellanic Clouds
- M. Compostella: The intergalactic medium and reionization: a numerical perspective
- J. Dabringhausen: The stellar initial mass function in massive star clusters
- M. de Lima Leal Ferreira: Magnetic Fields and the Formation of A-spherical of Planetary Nebulae
- M. den Heijer: Neutral atomic hydrogen in nearby galaxies

A. Doria: Mass determination from weak lensing of high redshift galaxy clusters and comparison with x-ray mass estimates

S. Faridani: The baryon budget of nearby galaxies

L. Flöer: Exploration of the Local Universe in HI

N. González Jiménez: Evolution of massive close binaries at low metallicity

L. Grassitelli: The envelope structure of Wolf-Rayet stars

M. Habibi: Starburst clusters near the centre of the Galaxy

B. Hußmann: The mass function of the Quintuplet cluster

A. Istrate: Evolution of close orbit low-mass x-ray binaries

B. Javanmardi: Investigations towards a better cosmological model

F. Kirsten: Pulsar Astrometry with VLBI

M. Klein: A joint mass analysis of galaxy clusters from weak gravitational lensing and Sunyaev-Zel'dovich measurements

K. Köhler: Massive stars on the main sequence

A. Kozyreva: Pre-supernova evolution of massive stars

S. Kühnrich: Evolutionary models of interacting massive close binary stars

F. Lüghausen: Numerical N-body computations of galaxies in Milgromian dynamics

V. Lüghausen: Searching for compact high-velocity clouds in the northern and southern sky using EBHIS and GASS data

H. Mahmoudian: HST observations of gravitational lens B0218+357

P. Marchant Campos: Rapid binary evolution with the MESA code

S. Martin: Galaxy-galaxy-galaxy lensing to investigate common dark matter halos of galaxies

D. Meyer: Models for the circumstellar medium of massive runaway stars

B. Miranda Ocejó: Study of the outskirts of galaxy clusters with X-rays

A. Nagarajan: The structure and properties of intra cluster gas in galaxy clusters

F. Navarrete Avendano: The far-infrared-radio correlation in the COSMOS survey data

S. Oh: Massive stars in young star clusters

M. Pawlowski: Formation of Tidal Dwarf Galaxies in Galaxy Encounters

A. Pérez Sánchez: Molecular line emission in asymmetric envelopes of evolved stars

J. Pollack: The bispectrum as a probe into halo bias

A. Purkayastha: Magnetization of the IGM: Role of starburst dwarf galaxies

M. Ramos Ceja: Cosmology with X-ray galaxy cluster surveys

T. Röhser: Quantitative modeling of the gas-to-dust ratio of the Milky Way Galaxy

N. Roth: Cosmology and large scale structure

H. Saghiha: Quantitative analysis of galaxy-galaxy-galaxy lensing

S. Salim: Star formation in high redshift galaxies

D. Sanyal: Non-linear oscillations of massive stars near the Eddington limit

G. Schellenberger: X-ray analysis of a complete sample of galaxy clusters

F. Schneider: The effects of stellar and close binary evolution on the present day mass function

- S. Sengupta: The origin of carbon-rich stars in the Galactic halo
- Z. Shafiee: Lensing studies in the Kilo Degree Survey
- Z. Sheikhabaee: Mass and light in the Abell 226/228 supercluster
- M. Sokaliwska: Nuclear star clusters
- D. Szécsi: Evolution of massive stars at low metallicity
- M. Tomassetti: Numerical simulations of galaxy formation
- M. Trasatti: Exploring the nature of radio halos and relics in galaxy clusters
- A. Tudorica: Determining the mass-observable relations of galaxy clusters with weak gravitational lensing magnification
- B. Vijaysarathy: Detailed X-ray properties of galaxy groups and fossil groups
- P. Wilking: A quasi-Gaussian approximation for the probability distribution of correlation functions

3 Veröffentlichungen

3.1 In Zeitschriften und Büchern

- K. A. Alamo-Martínez, M. J. West, J. P. Blakeslee, R. A. González-Lópezlira, A. Jordán, M. Gregg, P. Côté, M. J. Drinkwater, and S. van den Bergh, *Globular cluster systems in fossil groups: NGC 6482, NGC 1132, and ESO 306-017*, *A&A* **546** (Oct., 2012) A15,
- F. O. Alves, W. H. T. Vlemmings, J. M. Girart, and J. M. Torrelles, *The magnetic field of IRAS 16293-2422 as traced by shock-induced H₂O masers*, *A&A* **542** (June, 2012) A14,
- F. O. Alves, W. H. T. Vlemmings, J. M. Girart, and J. M. Torrelles, *The magnetic field of IRAS 16293-2422 as traced by shock-induced H₂O masers*, in *IAU Symposium* (R. S. Booth, W. H. T. Vlemmings, and E. M. L. Humphreys, eds.), vol. 287 of *IAU Symposium*, pp. 74–78, July, 2012.
- AMI Consortium, N. Hurley-Walker, S. Bridle, E. S. Cypriano, M. L. Davies, T. Erben, F. Feroz, T. M. O. Franzen, K. Grainge, M. P. Hobson, A. Lasenby, P. J. Marshall, M. Olamaie, G. Pooley, C. Rodríguez-Gonzálvez, R. D. E. Saunders, A. M. M. Scaife, M. P. Schammel, P. F. Scott, T. Shimwell, D. Titterton, E. Waldram, and J. T. L. Zwart, *Bayesian analysis of weak gravitational lensing and Sunyaev-Zel'dovich data for six galaxy clusters*, *MNRAS* **419** (Feb., 2012) 2921–2942,
- N. Amiri, W. H. T. Vlemmings, A. J. Kemball, and H. J. van Langevelde, *VLBA SiO maser observations of the OH/IR star OH 44.8-2.3: magnetic field and morphology*, *A&A* **538** (Feb., 2012) A136,
- P. Anders, H. Baumgardt, E. Gaburov, and S. Portegies Zwart, *How well do STARLAB and NBODY compare? II. Hardware and accuracy*, *MNRAS* **421** (Apr., 2012) 3557–3569,
- G. W. Angus, K. J. van der Heyden, B. Famaey, G. Gentile, S. S. McGaugh, and W. J. G. de Blok, *A QUMOND galactic N-body code - I. Poisson solver and rotation curve fitting*, *MNRAS* **421** (Apr., 2012) 2598–2609,
- J. Antoniadis, M. H. van Kerkwijk, D. Koester, P. C. C. Freire, N. Wex, T. M. Tauris, M. Kramer, and C. G. Bassa, *The relativistic pulsar-white dwarf binary PSR J1738+0333 - I. Mass determination and evolutionary history*, *MNRAS* **423** (July, 2012) 3316–3327,
- M. Aravena, C. L. Carilli, M. Salvato, M. Tanaka, L. Lentati, E. Schinnerer, F. Walter, D. Riechers, V. Smolčić, P. Capak, H. Aussel, F. Bertoldi, S. C. Chapman, D. Farrah, A. Finoguenov, E. Le Floch, D. Lutz, G. Magdis, S. Oliver, L. Riguccini, S. Berta,

- B. Magnelli, and F. Pozzi, *Deep observations of CO line emission from star-forming galaxies in a cluster candidate at $z=1.5$* , *MNRAS* **426** (Oct., 2012) 258–275,
- J. T. Armstrong, A. M. Jorgensen, H. R. Neilson, D. Mozurkewich, E. K. Baines, and H. R. Schmitt, *Precise stellar diameters from coherently averaged visibilities*, in *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, vol. 8445 of *Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series*, July, 2012.
- M. Asgari, P. Schneider, and P. Simon, *Cosmic shear tomography and efficient data compression using COSEBIs*, *A&A* **542** (June, 2012) A122,
- A. Balaguera-Antolínez, A. G. Sánchez, H. Böhringer, and C. Collins, *Constructing mock catalogues for the REFLEX II galaxy cluster sample*, *MNRAS* **425** (Sept., 2012) 2244–2254,
- A. Balaguera-Antolinez, A. G. Sanchez, and H. Bohringer, *The REFLEX II Galaxy Cluster sample: mock catalogues and clustering analysis*, in *Half a Century of X-ray Astronomy, Proceedings of the conference held 17-21 September, 2012 in Mykonos Island, Greece*, id.71, Sept., 2012.
- M. Baloković, V. Smolčić, Ž. Ivezić, G. Zamorani, E. Schinnerer, and B. C. Kelly, *Disclosing the Radio Loudness Distribution Dichotomy in Quasars: An Unbiased Monte Carlo Approach Applied to the SDSS-FIRST Quasar Sample*, *ApJ* **759** (Nov., 2012) 30,
- S. Banerjee and P. Kroupa, *On the true shape of the upper end of the stellar initial mass function. The case of R136*, *A&A* **547** (Nov., 2012) A23,
- S. Banerjee, P. Kroupa, and S. Oh, *Runaway Massive Stars from R136: VFTS 682 is Very Likely a "Slow Runaway"*, *ApJ* **746** (Feb., 2012) 15,
- K. Basu, *A Sunyaev-Zel'dovich take on cluster radio haloes - I. Global scaling and bimodality using Planck data*, *MNRAS* **421** (Mar., 2012) L112–L116,
- N. Ben Bekhti, B. Winkel, P. Richter, J. Kerp, U. Klein, and M. T. Murphy, *An absorption-selected survey of neutral gas in the Milky Way halo. New results based on a large sample of Ca ii, Na i, and H i spectra towards QSOs*, *A&A* **542** (June, 2012) A110.
- N. Ben Bekhti, P. Richter, B. Winkel, F. Kenn, T. Westmeier, and M. Murphy, *Low-column density HVC and IVC gas in the halo of the Milky Way*, in *EAS Publications Series* (M. A. de Avillez, ed.), vol. 56 of *EAS Publications Series*, pp. 313–317, Sept., 2012.
- P. Bett, *Halo shapes from weak lensing: the impact of galaxy-halo misalignment*, *MNRAS* **420** (Mar., 2012) 3303–3323,
- P. E. Bett and C. S. Frenk, *Spin flips - I. Evolution of the angular momentum orientation of Milky Way-mass dark matter haloes*, *MNRAS* **420** (Mar., 2012) 3324–3333,
- A. Bik, T. Henning, A. Stolte, W. Brandner, D. A. Gouliermis, M. Gennaro, A. Pasquali, B. Rochau, H. Beuther, N. Ageorges, W. Seifert, Y. Wang, and N. Kudryavtseva, *Age Spread in W3 Main: Large Binocular Telescope/LUCI Near-infrared Spectroscopy of the Massive Stellar Content*, *ApJ* **744** (Jan., 2012) 87,
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