Curriculum vitae of Hans Bruntt

CONTACT INFORMATION

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EDUCATION

Ph.D. in physics and astronomy **March, 2003**
Aarhus University, Department of Physics & Astronomy.

PROFESSIONAL EXPERIENCE

Postdoctoral fellow, **Oct, 2010 – ?**
Niels Bohr Institute, Department of Astronomy, **Denmark**.
Employer: Jens-Viggo Clausen (`jvc@nbi.dk`; phone: 3532 5926) and
Uffe Gråe Jørgensen (`uffegj@nbi.dk`; phone: 3532 5998).

- Teaching master student course on spectroscopic methods.
- Detailed analysis of detached eclipsing binaries in the field.
- Calibration of solar-type stars and giants in the *Kepler* field.

Postdoctoral fellow, 3 months **May, 2010 – July, 2010**
Aarhus University, Department of Physics & Astronomy, **Denmark**.
Employer: Frank Grundahl (`fgj@phys.au.dk`; phone: 2131 4367).

- Spectroscopic analysis of binary stars in NGC 6791.
- Coordination of support observations for the NASA/*Kepler* satellite mission.
- Development of pipeline software for the SONG telescope project.

Postdoctoral fellow, 1 year **February, 2009 – February, 2010**
LESIA Laboratory, Observatory of Paris-Meudon, **France**
Employer: Claude Catala (`Claude.Catala@obspm.fr`; phone: +33 1 4507 7875).

- Coordination of support observations for the NASA/*Kepler* satellite mission.
- Development of automatic software for analysing targets for the CoRoT/ESA satellite mission.

Postdoctoral fellow, 3 years **February, 2006 – January, 2009**
School of Physics, University of Sydney, **Australia**
Employer: Tim Bedding (`T.Bedding@physics.usyd.edu.au`; phone: +61 2 9351 2680).

- Combining satellite data with ground-based photometry, radial velocity, and interferometric data.

Postdoctoral fellow, 1 year **January, 2005 – February, 2006**
The Niels Bohr Institute, University of Copenhagen, **Denmark**
Employer: Jens-Viggo Clausen (`jvc@nbi.dk`).

- Principal technical coordinator of the scientific programme of the WIRE/NASA satellite.
- Development of automatic GUI software for analysis of stellar spectra.

Postdoctoral fellow, 1 year (DEN) + 5 months (USA) **August, 2003 – December, 2004**
US Air Force Academy, Colorado Springs, Colorado, **USA**, and
Department of Physics & Astronomy, Aarhus, **Denmark**
Employer: Derek L. Buzasi (`dbuzasi@gmail.com`).

- Development of the pipeline software for the reduction of data from the WIRE/NASA satellite.

LEADERSHIP

Ground-based support for the NASA/*Kepler* mission
During two observing seasons, I led the organization of observing campaigns on the open clusters and bright solar-type stars in the *Kepler* field. This resulted in 190 observing nights. **2009 – 2010**

Coordination of asteroseismic observations with the NASA/WIRE satellite
For two years I made the scientific plan and scheduled observations done with the NASA/WIRE satellite. More than 200 bright stars were observed uninterrupted for up to 6 weeks. **2005 – 2006**

COMMUNICATION

Presentations at 12 meetings and conferences of which three were invited:
- "HELAS II: Helioseismology, Asteroseismology, and MHD Connections" in Göttingen, Germany.
- "Cycles of Discovery" at UBC in Vancouver, Canada.
- "The Future of Asteroseismology" in Vienna, Austria.

TEACHING

Aarhus University and Niels Bohr Institute **2005 – 2011**
I have co-supervised ten bachelor and master students in spectroscopic analysis.

Aarhus University **1999 – 2002**
I was an instructor for 1st and 2nd year students in math, physics and astronomy (four semesters).

Ole Rømer Observatory **1997 – 1999**
I was a custodian giving public talks every week at the local observatory for two years.

OBSERVING EXPERIENCE

Manual observations
I have observed 110 nights in USA, Chile and Australia. **1996 – 2007**

PROJECT COLLABORATORS

Table 1: List of main collaborators during the project. Names marked with (**T**) are experts in theoretical aspects while (**O**) focus on observational and data analysis techniques.

Field of research	Project	Collaborators
Star clusters	HB(**O**), Ph. D.(**O**), Post Doc(**O**)	F. Grundahl(**O**), D. Yong(**O**), D. A. VandenBerg(**T**)
Eclipsing binary stars	Post Doc(**O**), Ph. D(**O**)	E. Sandquist(**O**), K. Brogaard(**O**), J. Southworth(**O**&**T**), J.V Clausen(**O**&**T**)
Chemical composition	HB(**O**&**T**)	C. Catala(**O**), D. Yong(**O**), M. Asplund(**T**)
Asteroseismology	HB(**O**), Post Doc(**O**)	D. Stello(**O**), T. Bedding(**O**), J. Christensen-Dalsgaard(**T**), S. Basu(**T**), A. Moya(**T**), J.-C. Suárez(**T**)

CURRENT COLLABORATORS

Tim Bedding (AU), Dennis Stello (AU), Derek Buzasi (US), Sarbani Basu (US), Juan-Carlos Suárez (ES), Pedro Amado (ES), Claude Catala (FR), Magali Deleuil (FR), Benoît Mosser (FR), Conny Aerts (BE), Malcolm Fridlund (NL), John Southworth (GB), Barry Smalley (GB), William Chaplin (GB), Joanna Molenda-Żakowicz (PL), Hans Kjeldsen (DK), Frank Grundahl (DK), Christoffer Karoff (DK), Karsten Brogaard (DK), Søren Frandsen (DK), and Jens-Viggo Clausen (DK).

SCIENTIFIC PUBLICATIONS

In the five-year period from 2006–2010 and 2011 I have contributed to the 91 scientific papers listed below. I am the first author on 17 papers. The name **Bruntt** is written in bold if it is among the first four authors. The most important papers related to this project are highlighted in red.

PUBLICATIONS 2006–2011 (67 REFEREED)

[1]Basu, S., et al. 2011, ApJL, 729, L10–15, *Sounding Open Clusters: Asteroseismic Constraints from Kepler on the Properties of NGC 6791 and NGC 6819*

[2]Brandão, I. M., et al. 2011, A&A, 527, A37–44, *Asteroseismic modelling of the solar-type subgiant star β Hydri*

[3]Catanzaro, G., et al. 2011, MNRAS, 411, 1167–1176, *Atmospheric parameters and pulsational properties for a sample of δ Sct, γ Dor and hybrid Kepler targets*

[4]Brogaard, K., **Bruntt**, H. et al., 2011, A&A, 525, A2–19, *Age and helium content of the open cluster NGC 6791 from multiple eclipsing binary members. I. Measurements, methods, and first results*

[5]**Bruntt**, H. et al., 2010, MNRAS, 405, 1907–1923, *Accurate fundamental parameters for 23 bright solar-type stars*

[6]**Bruntt**, H., et al. 2010, A&A, 519, A51–60, *Improved stellar parameters of CoRoT-7. A star hosting two super Earths*

[7]**Bruntt**, H. et al., 2010, A&A, 512, A55–61, *The radius and effective temperature of the binary Ap star β CrB from CHARA/FLUOR and VLT/NACO observations*

[8]Cabrera, J., **Bruntt**, H. et al. 2010, A&A, 522, A110–119, *Transiting exoplanets from the CoRoT space mission . XIII. CoRoT-13b: a dense hot Jupiter in transit around a star with solar metallicity and super-solar lithium content*

[9]Clausen, J. V., **Bruntt**, H. et al., 2010, A&A, 511, A22–31, *Absolute dimensions of solar-type eclipsing binaries. III. EW Orionis: stellar evolutionary models tested by a G0 V system*

[10]Dall, T.H., **Bruntt**, H. et al., 2010, A&A, 514, A25–34, *Solar-like oscillations and magnetic activity of the slow rotator EK Eridani*

[11]Deheuvels, S., **Bruntt**, H. et al., 2010, A&A, 515, A87–99, *Seismic and spectroscopic characterization of the solar-like pulsating CoRoT target HD 49385*

[12]Molenda-Żakowicz, J., **Bruntt**, H. et al. 2010, AN, 331, 981–984, *Asteroseismology of solar-type stars with Kepler: III. Ground-based data*

[13]Stello, D., Basu, S., **Bruntt**, H. et al., 2010, ApJ, 713, L182–186, *Detection of Solar-like Oscillations from Kepler Photometry of the Open Cluster NGC 6819*

[14]Clausen, J. V., Frandsen, S., **Bruntt**, H. et al., 2010, A&A, 516, A42–55, *Absolute dimensions of eclipsing binaries. XXVIII. BK Pegasi and other F-type binaries: Prospects for calibration of convective core overshoot*

[15]Uytterhoeven, K., Briquet, M., **Bruntt**, H., 2010, AN, 331, 993–997, *Ground-based follow-up in relation to Kepler asteroseismic investigation*

[16]Mathur, S., Garcia, R. A., Catala, C., **Bruntt**, H. et al. 2010, A&A, 518, A53–63, *The solar-like CoRoT target HD 170987: spectroscopic and seismic observations*

[17]Lammer, H., et al. 2010, Solar System Research, 44, 520–526, *Exoplanet discoveries with the CoRoT space observatory*

[18]Gandolfi, D., et al. 2010, A&A, 524, A55–67, *Transiting exoplanets from the CoRoT space mission. XIV. CoRoT-11b: a transiting massive "hot-Jupiter" in a prograde orbit around a rapidly rotating F-type star*

[19]Metcalfe, T. S., et al. 2010, ApJ, 723, 1583–1598, *A Precise Asteroseismic Age and Radius for the Evolved Sun-like Star KIC 11026764*

[20]Kallinger, T., et al. 2010, A&A, 522, A1–14, *Asteroseismology of red giants from the first four months of Kepler data: Fundamental stellar parameters*

[21]Gillon, M., et al. 2010, A&A, 520, A97–104, *Transiting exoplanets from the CoRoT space mission. XII. CoRoT-12b: a short-period low-density planet transiting a solar analog star*

[22]Bordé, P., et al. 2010, A&A, 520, A66–75, *Transiting exoplanets from the CoRoT space mission. XI. CoRoT-8b: a hot and dense sub-Saturn around a K1 dwarf*

[23]Bonomo, A. S., et al. 2010, A&A, 520, A65–72, *Transiting exoplanets from the CoRoT space mission. X. CoRoT-10b: a giant planet in a 13.24 day eccentric orbit*

[24]Gaulme, P., et al. 2010, A&A, 524, A47–54, *HD 46375: seismic and spectropolarimetric analysis of a young Sun hosting a Saturn-like planet*

[25]Gaulme, P., et al. 2010, A&A, 518, L153–157, *Possible detection of phase changes from the non-transiting planet HD 46375b by CoRoT*

[26]Stello, D., et al. 2010, AN, 331, 985–988, *Solar-like oscillations in cluster stars*

[27]Bedding, T. R. et al., 2010, ApJ, 713, L176–181, *Solar-like Oscillations in Low-luminosity Red Giants: First Results from Kepler*

[28]Bedding, T. R. et al., 2010, ApJ, 713, 935–949, *A Multi-Site Campaign to Measure Solar-Like Oscillations in Procyon. II. Mode Frequencies*

[29]Chaplin, W. J. et al., 2010, ApJ, 713, L169–175, *The Asteroseismic Potential of Kepler: First Results for Solar-Type Stars*

[30]Deeg, H. J. et al., 2010, Nature, 464, 384–387, *A transiting giant planet with a temperature between 250K and 430K*

[31]Fridlund, M. et al., 2010, A&A, 512, A14–25, *Transiting exoplanets from the CoRoT space mission. IX. CoRoT-6b: a transiting "hot Jupiter" planet in an 8.9d orbit around a low-metallicity star*

[32]**Bruntt**, H., 2009, A&A, 506, 235–244, *Accurate fundamental parameters of CoRoT asteroseismic targets. The solar-like stars HD 49933, HD 175726, HD 181420, and HD 181906*

[33]**Bruntt**, H. et al., 2009, MNRAS, 396, 1189–1201, *Asteroseismic analysis of the roAp star α Circini: 84d of high-precision photometry from the WIRE satellite*

[34]Clausen, J. V., **Bruntt**, H. et al., 2009, A&A, 502, 253–265, *Absolute dimensions of solar-type eclipsing binaries. II. V636 Centauri: A 1.05 $M_{\odot}$ primary with an active, cool, oversize 0.85 $M_{\odot}$ secondary*

[35]Stello, D., Chaplin, W.J., **Bruntt**, H. et al., 2009, ApJ, 700, 1589–1602, *Radius Determination of Solar-type Stars Using Asteroseismology: What to Expect from the Kepler Mission*

[36]Léger, A. et al., 2009, A&A, 506, 287–302, *Transiting exoplanets from the CoRoT space mission. VIII. CoRoT-7b: the first super-Earth with measured radius*

[37]García, R. A., et al., 2009, A&A, 506, 41–50, *Solar-like oscillations with low amplitude in the CoRoT target HD 181906*

[38]Barban, C., 2009, A&A, 506, 51–56, *Solar-like oscillations in HD 181420: data analysis of 156 days of CoRoT data*

[39]Mosser, B. et al., 2009, A&A, 506, 33–40, *The CoRoT target HD 175726: an active star with weak solar-like oscillations*

[40]Moutou, C., 2009, A&A, 506, 321–336, *Planetary transit candidates in the CoRoT initial run: resolving their nature*

[41]North, J. R. et al, 2009, MNRAS, 393, 245–252, *The radius and other fundamental parameters of the F9V star β Virginis*

[42]Almenara, J.M., 2009, A&A, 506, 337–341, *Rate and nature of false positives in the CoRoT exoplanet search*

[43]Rauer, H. et al., 2009, A&A, 506, 281–286, *Transiting exoplanets from the CoRoT space mission. VII. The "hot-Jupiter"-type planet CoRoT-5b*

[44]Cabrera, J. 2009, A&A, 506, 501–517, *Planetary transit candidates in CoRoT-LRc01 field*

[45]Lawrence, J. S. et al., 2009, Publ. Astron. Soc. of Australia, 26, 379–396, *The Science Case for PILOT I: Summary and Overview*

[46]Lawrence, J. S. et al., 2009, Publ. Astron. Soc. of Australia, 26, 415–438, *The Science Case for PILOT III: the Nearby Universe*

[47]Arentoft, T. et al., 2008, ApJ, 687, 1180–1190, *A Multisite Campaign to Measure Solar-like Oscillations in Procyon. I. Observations, Data Reduction, and Slow Variations*

[48]**Bruntt**, H. et al., 2008, MNRAS, 386, 2039–2046, *The fundamental parameters of the roAp star α Circini*

[49]**Bruntt**, H. et al., 2008, ApJ, 683, 433–440, *Polaris the Cepheid Returns: 4.5 Years of Monitoring from Ground and Space*

[50]**Bruntt**, H., De Cat P., Aerts C., 2008, A&A, 478, 487–496, *A spectroscopic study of southern (candidate) γ Doradus stars. II. Detailed abundance analysis and fundamental parameters*

[51]Clausen, J. V., Torres, G. & **Bruntt**, H. et al. 2008, A&A, 487, 1095–1117, *Absolute dimensions of eclipsing binaries. XXVI. Setting a new standard: Masses, radii, and abundances for the F-type systems AD Bootis VZ Hydrae, and WZ Ophiuchi*

[52]Deleuil, M. et al., 2008, A&A, 491, 889–897, *Transiting exoplanets from the CoRoT space mission . VI. CoRoT-Exo-3b: the first secure inhabitant of the brown-dwarf desert*

[53]Kambe, E. et al., 2008, PASJ, 60, 45–53, *Development of Iodine Cells for Subaru HDS and Okayama HIDES. III. An Improvement on the Radial-Velocity Measurement Technique*

[54]Moutou, C., **Bruntt**, H. et al., 2008, A&A, 488, 47–50, *Transiting exoplanets from the CoRoT space mission. V. CoRoT-Exo-4b: stellar and planetary parameters*

[55]Stello D., **Bruntt**, H. et al., 2008, ApJ, 674, L53–56, *Oscillating K Giants with the WIRE Satellite: Determination of Their Asteroseismic Masses*

[56]**Bruntt**, H. et al., 2007, MNRAS, 378, 1371–1384, *Multisite campaign on the open cluster M67 - III. δ Scuti pulsations in the blue stragglers*

[57]**Bruntt**, H. et al., 2007, A&A, 461, 619–630, *Asteroseismology with the WIRE satellite. I. Combining ground- and space-based photometry of the δ Scuti star ϵ Cephei*

[58]Dall, T. H. et al., 2007, A&A, 470, 1201–1214, *VSOP: the variable star one-shot project. I. Project presentation and first data release*

[59]de Marchi, F. et al., 2007, A&A, 471, 515–526, *Variable stars in the open cluster NGC 6791 and its surrounding field*

[60]Frandsen, S., **Bruntt**, H. et al., 2007, A&A, 475, 991–1002, *A search for solar-like oscillations in K giants in the globular cluster M 4*

[61]Montalto, M. et al., 2007, A&A, 470, 1137–1156, *A new search for planet transits in NGC 6791*

[62]Southworth, J., **Bruntt**, H. & Buzasi, D. L., 2007, A&A, 467, 1215–1226, *Eclipsing binaries observed with the WIRE satellite. II. β Aurigae and non-linear limb darkening in light curves*

[63]Stello, D., **Bruntt**, H. et al., 2007, MNRAS, 377, 584–594, *Multisite campaign on the open cluster M67 - II. Evidence for solar-like oscillations in red giant stars*

[64]**Bruntt**, H. et al., 2006, A&A, 456, 651–658, *Eclipsing binaries observed with the WIRE satellite. I. Discovery and photometric analysis of the new bright A0 IV eclipsing binary ψ Centauri*

[65]Dall, T. H., Strassmeier, K. G. & **Bruntt**, H., 2006, Ap&SS, 304, 195–197, *Late-Type Active Stars: Rotation and Companions*

[66]O'Toole, S. J. et al., 2006, BaltA, 15, 61–64, *NGC 6121-V46: a Low-Mass Double Degenerate Ellipsoidal Variable in a Globular Cluster*

[67]Stello, D. et al., 2006, MNRAS, 373, 1141–1150, *Multisite campaign on the open cluster M67 - I. Observations and photometric reductions*

Publications (6 accepted)

[1]**Bruntt**, H., Frandsen, S., & Thygesen, A. O. 2010, arXiv:1012.0436, *Atmospheric parameters of red giants in the Kepler field*

[2]Southworth, J., Zima, W., Aerts, C., **Bruntt**, H., arXiv:1102.3599, *Kepler photometry of KIC 10661783: a binary star with total eclipses and delta Scuti pulsations*

[3]Szabó, R., et al. 2011, arXiv:1101.2443, *Cepheid investigations using the Kepler space telescope*

[4]Tingley, B., et al. 2011, arXiv:1101.1899, *Transiting exoplanets from the CoRoT space mission: XIII. CoRoT-14b: an unusually dense very hot Jupiter*

[5]Dall, T. H., et al., 2010, arXiv:1012.1152, *Oscillations and magnetic fields in the G8 star EK Eridani*

[6]Uytterhoeven, K., et al. 2010, arXiv:1003.6089, *Ground-based observations of Kepler asteroseismic targets*

PUBLICATIONS (18 NON-REFEREED)

[1]**Bruntt**, H., 2010, Proc. of IAU Symp., 265, 215–216, *Accurate Fundamental Stellar Parameters*

[2]**Bruntt**, H. et al., 2009, Am. Inst. Phys. Conf. Ser. 1094, 884–887, *Welcome back, Polaris the Cepheid*

[3]Briguglio, R., Tosti, G., Strassmeier, K. G., **Bruntt**, H. et al., 2009, M. Soc. Astron. Ital. 80, 147–150, *The Small IRAIT telescope. Photometric time-series during the polar night*

[4]**Bruntt**, H. & Southworth, J., 2008, JPhCS, 118, 2012–2021, *A new level of photometric precision: WIRE observations of eclipsing binary stars*

[5]Brandao, I. M., **Bruntt**, H. et al., 2008, CoAst, 157, 234–238, *Interferometric and seismic constraints on the roAp star α Cir*

[6]Foellmi, C. et al., 2008, Proc. of the EURO-VO Workshop March 2007, pp. 15–18, *The Variable Star One-shot Project, and its little child: Wikimbad*

[7]Hekker, S. et al., 2008, JPhCS, 118, 2059–2065, *Oscillations in Procyon A: First results from a multi-site campaign*

[8]Grundahl, F. et al., 2008, M. Soc. Ast. Ital., 79, 476–480, *Pinpointing isochrones in clusters*

[9]**Bruntt**, H., Southworth, J. & Buzasi, D. L., 2007, Proc. of IAU Symp., 240, 268–271, *WIRE Satellite Light Curves of Bright Eclipsing Binary Stars*

[10]**Bruntt**, H., 2007, CoAst, 150, 326–332, *Asteroseismology with the WIRE satellite*

[11]Frandsen, S., **Bruntt**, H. et al., 2007, CoAst, 150, 139–140, *A search for solar-type oscillations in K giants in M4*

[12]Karoff, C., **Bruntt**, H. et al., 2007, CoAst, 150, 147–148, *Detection of p-mode oscillations in β Hydri from photometric observations with WIRE*

[13]Southworth, J. & **Bruntt**, H., 2007, Proc. of IAU Symp., 239, 157–159, *Testing convection in stellar models using detached eclipsing binaries*

[14]Stello, D., **Bruntt**, H. et al., 2007, CoAst, 150, 149–150, *Solar-like oscillations in open cluster stars*

[15]**Bruntt**, H. & Buzasi, D. L., 2006, M. Soc. Ast. Ital., 77, 278–281, *High-precision photometry with the WIRE satellite*

[16]Grundahl, F., Arentoft, T., **Bruntt**, H. et al., 2006, M. Soc. Ast. Ital., 77, 433–436, *Pinpointing isochrones in clusters*

[17]Grundahl, F., Meibom, S., **Bruntt**, H. et al., 2006, Abund. & Mixing in Stars, ESO Symp., 58–59, *Studying Old Open Clusters with Detached Eclipsing Binaries*

[18]Grundahl, F. & **Bruntt**, H., 2006, Abund. & Mixing in Stars, ESO Symp., p. 132–133, *Abundance Variations in NGC 288, NGC 362 and NGC 1851*