

Thibaut DECRESSIN

Curriculum vitae

Born April 28, 1980 in Limoges (France)
Nationality: French

Argelander-Institut für Astronomie
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Scientific speciality

- Theoretical astrophysics, stellar evolution with an emphasis on the effects of improved physical treatment on chemical evolution.
- Theoretical astrophysics, dynamics of stellar clusters.

Scientific experience

2008–...	Post-doctoral position at the Argelander-Institut für Astronomie, Bonn, Germany, Swiss FNRS fellow
2003–2007	PhD thesis in Astrophysics at Geneva Observatory, University of Geneva, Switzerland, on the <i>Abundance anomalies in globular clusters in light of models of rotating stars</i> , under the supervision of Dr. Corinne Charbonnel
March–June 2003	Master thesis in Astrophysics at Observatoire Midi-Pyrénées, University Paul Sabatier, Toulouse, France under the supervision of Dr. Corinne Charbonnel, on <i>Effects of internal gravity waves on angular momentum transport in stars</i>
Mai–June 2002	Research project in Physics at the Observatoire Midi-Pyrénées, University Paul Sabatier, Toulouse, France, under the supervision of Dr. Corinne Charbonnel, on <i>Effects of initial composition on the properties of low mass stars at low metallicity</i>

Academic record

2003–2007	PhD in Astrophysics at the Geneva Observatory, University of Geneva, Switzerland, Swiss FNRS fellow, supervised by Dr. Corinne Charbonnel
2002–2003	DEA (Master2 degree) in Astrophysics, Planetology, and spatial sciences and techniques at University Paul Sabatier, Toulouse, France, obtained in June 2003; “Mention Assez Bien”
2001–2002	Maîtrise (Master1 degree) in fundamental physics at University Paul Sabatier, Toulouse, France, obtained in June 2002; “Mention Bien”
2000–2001	Licence (Bachelor degree) in fundamental physics at University Paul Sabatier, Toulouse, France, obtained in June 2001; “Mention Bien”

Teaching experience and public outreach

- Lectures on “Stellar structure and evolution” at the University Libre de Bruxelles, Belgium, September–November 2008, 16h to master students
- Lectures on “Stars and stellar evolution” at Bonn University (Germany), November–December 2008, 6h to master students
- Lecture at NIC–IX Summer School on *The treatment of nucleosynthesis in stellar evolution codes*, 1h, June 2006, Geneva, Switzerland.
- Joint management of TP (training period) for five undergraduate students at Geneva University during my PhD.
- Outreach: participation in various outreach actions during astronomical events (solar eclipse, Venus transit...) and public observations (planetarium and 70 cm telescope) during my PhD.

Scientific results

- 6 referee papers in A&A and AN, (3 in preparation)
- 12 contributions to international conferences (8 oral presentations and 4 posters)
- 1 invitation to a seminar lecture in Meudon Observatory (Paris, France)

Collaborations and contacts

- Corine Charbonnel, Georges Meynet, Observatoire de Genève, Genève, Switzerland, on *stellar evolution and globular clusters evolution*.
- Pavel Kroupa, Holger Baumgardt, Argelander-Institut für Astronomie (AIfA), Bonn, Germany, on *dynamics of two stellar populations in globular clusters*.
- Lionel Siess, Marcel Arnould, Université Libre de Bruxelles (U.L.B.), Bruxelles, Belgium, on *numerical development in the stellar evolution code STAREVOL and stellar yields*.
- Ana Palacios, Groupe de Recherches en Astronomie et Astrophysique du Languedoc (GRAAL), Montpellier, France, on *numerical development in the stellar evolution code STAREVOL and stellar yields*.
- Stéphane Mathis, Commissariat à l'Énergie Atomique (C.E.A.), Laboratoire Plasmas Stellaires et Astrophysique Nucléaire, Saclay, France, on *stellar secular hydrodynamic and mixing's impact on stellar evolution*.
- Nikos Prantzos, Institut d'Astrophysique de Paris (I.A.P.), Paris, France, on *chemical evolution of globular clusters*.
- Member of the French group on "Transport processes in evolved stars and observational diagnostics" supported by the National Program of Stellar Physics (P.N.P.S).

Computer programming

- *Simulation tools*:
 - ◊ stellar evolution code: STAREVOL and Geneva code
 - ◊ stellar dynamical code: Nbody4 code
- *Programming language*: Fortran, Perl, L^AT_EX, SuperMongo (good knowledge), HTML, Java, Matlab, Maple (basis skill)
- *System*: Linux, Solaris, Windows.

Language

- French: mother tongue
- English: correct level
- German: basis

Refereed journals

- **Decressin T.**, Mathis S., Palacios A., Siess L., Talon S., Charbonnel C., Zahn J.-P., 2008, A&A accepted, 16 pages
Diagnoses to unravel secular hydrodynamical processes in rotating main sequence stars
- **Decressin T.**, Baumgardt H., Kroupa P., 2008, A&A in press, 9 pages
The evolution of two stellar populations in globular clusters I. The dynamical mixing timescale
- **Decressin T.**, Baumgardt H., Kroupa P., 2008, AN in press, 4 pages
Dynamical mixing of two stellar populations in globular clusters
- **Decressin T.**, Charbonnel C., Meynet G., 2007, A&A, 475, 859-873, cover page
Origin of the abundance patterns in Galactic globular clusters: constraints on dynamical and chemical properties of globular clusters
- **Decressin T.**, Meynet G., Charbonnel C., Prantzos N., Ekström S., 2007, A&A, 464, 1029-1044
Fast rotating massive stars and the origin of the abundance patterns in galactic globular clusters
- Mathis S., **Decressin T.**, Palacios A., Eggenberger P., Siess L., Talon S., Charbonnel C., Turck-Chièze S., Zahn J.-P., 2007, Astron. Nachr., 328, 10, 1062-1065
Meridional circulation in the radiation zones of rotating stars: origins, behaviors and consequences on stellar evolution
- **Decressin T.**, Charbonnel C., Palacios A., Siess L., in preparation
Rotating AGB stars in globular clusters
- **Decressin T.**, Baumgardt H., Kroupa P., in preparation
The evolution of two stellar populations in globular clusters II. Effects of initial gas expulsion
- **Decressin T.**, Meynet G., Charbonnel C., in preparation
Origin of the abundance patterns in Galactic globular clusters: effect of He-enrichment on synthetic diagrams

Conference proceedings – Oral communication

- **Decressin T.**, Baumgardt H., Kroupa P., Meynet G., Charbonnel C., 2008, The ages of stars, IAU Symposium 258, Held in Baltimore, US, October 13-17 2008, edited by D. Soderblom et al., CUP, 8 pages
The ages of Galactic globular clusters in the context of self-enrichment
- Meynet G., **Decressin T.**, Charbonnel C., 2008, "Memorie della Societa' Astronomica Italiana", Vol. 79 No. 2, eds. S. Cassisi & M. Salaris, 8 pages, in press
Massive stars, globular clusters and elliptical galaxies
- **Decressin T.**, Charbonnel C., 2006, Why Galaxies Care About AGB Stars, August 7-11 Vienna, Austria Eds: F. Kerschbaum, C. Charbonnel, and B. Wing, 5 pages
The impacts of rotation on nucleosynthesis in metal-poor AGB-stars
- Charbonnel C., **Decressin T.**, Meynet G., Prantzos N., Ekström S., 2006, From Stars to Galaxies: Building the pieces to build up the Universe, Venice, 16-20 October 2006, Eds: A. Vallenari, R. Tantalò, L. Portinari and A. Moretti, 6 pages
Nuclei in Globular Clusters – A Long-Standing Problem Revisited
- Mathis S., **Decressin T.**, Palacios A., Siess L., Charbonnel C., Turck-Chièze S., Zahn J.-P., 2006, SOHO-18/GONG-2006/HELAS-I "Beyond the Spherical Sun: a new era of helio- and asteroseismology", meeting held in Sheffield, United-Kingdom; August 7-11, 2006; Eds: B. Fleck, K. Fletcher; ESA SP-624, Published on CDROM, p.36.1, 8 pages
Dynamical processes in stellar radiation zones: secular magnetohydrodynamics of rotating stars

- Mathis S., Eggenberger P., **Decressin T.**, Palacios A., Siess L., Charbonnel C., Turck-Chièze S., Zahn J.-P., 2006, Joint HELAS and CoRoT/ESTA Workshop on Solar/Stellar Models and Seismic Analysis Tools, meeting held in the Centro de Astrofísica da Universidade do Porto, Porto, Portugal; November 20-23, 14 pages
Dynamical processes in stellar radiation zones: advances in secular magnetohydrodynamics of rotating stars
- **Decressin T.**, Siess L., Charbonnel C., Leclair G., 2005, International Conference on Planetary Nebulae as Astronomical Tools. AIP Conference Proceedings, Volume 804, pp. 124-128
The Fate of Super-AGB Stars at Low Metallicity
- **Decressin T.**, Charbonnel C., Siess L., Palacios A., 2004, 7th Torino Workshop on Nucleosynthesis in AGB Stars, August 2-6, Cambridge, UK, Eds: R.J. Stancliffe, M.A. Lugaro, C.A. Tout, MSAI, v.75, pp.682-687
Rotating models of low metallicity AGB stars with STAREVOL,

Conference proceedings – Poster communication

- **Decressin T.**, Charbonnel C., 2006, Proceedings of the International Symposium on Nuclear Astrophysics - Nuclei in the Cosmos - IX. 25-30 June 2006, CERN., p.86.1, 5 pages
Nucleosynthesis and mixing in rotating AGB stars at low metallicity,
- Mathis S., **Decressin T.**, Palacios A., Siess L., Charbonnel C., Turck-Chièze S., Zahn J.-P., 2006, SF2A, Paris, France; June 26-30, Eds: D. Barret, F. Casoli, T. Contini, G. Lagache, A. Lecavalier and L. Pagani; pp.491-492
Dynamical processes in stellar radiation zones: secular magnetohydrodynamics of rotating stars,
- **Decressin T.**, Charbonnel C., 2005, From Lithium to Uranium: Elemental Tracers of Early Cosmic Evolution, IAU Symposium 228, Held in Paris, France, May 23-27, edited by Hill, V., François, P., Primas, F., CUP, 2005, pp.395-396
Did rotating AGB stars pollute the galactic globular clusters?,
- **Decressin T.**, Charbonnel C., Siess L., Palacios A., 2004: SF2A, Paris, France, Eds: F. Combes, D. Barret, T. Contini, F. Meynadier and L. Pagani. EdP-Sciences, Conference Series, pp.283-284
The role of low metallicity AGB stars in globular cluster evolution,