

## Personal Information

nationality	italian
Birth place	Trieste, Italy
Address	W.A.Vultostraat 127, 3523 TW Utrecht, The Netherlands
E-mail	C.Abate [at] astro.ru.nl
homepage	<a href="http://www.astro.ru.nl/wiki/general/people/carlo_abate">http://www.astro.ru.nl/wiki/general/people/carlo_abate</a>
Google Scholar	<a href="http://scholar.google.it/citations?user=_gLCCN8AAAAJ">http://scholar.google.it/citations?user=_gLCCN8AAAAJ</a>

## Current occupation

Since March 1st 2010 I am working on my doctoral project at the Department of Astrophysics of the Radboud Universiteit Nijmegen, in The Netherlands. I expect to defend my thesis between March and July 2014.

## Education

- 2010–present **Doctorate**, *Radboud Universiteit Nijmegen*, Nijmegen, The Netherlands, Supervisor: Onno Pols. E-mail: O.Pols [at] astro.ru.nl.  
My research project is devoted to investigate the properties of the metal-poor stars observed in the Galactic halo. A significant fraction of these stars show high carbon abundance and other chemical peculiarities, unexpected according to standard stellar nucleosynthesis. The aim of the project is to enlighten evolutionary path leading to the formation of these stars.
- 2007–2009 **Master degree in Astrophysics**, *Università degli Studi di Trieste*, Trieste, Italy, 110/110 cum laude.  
MSc Thesis: *A study of the chemical composition of the dust in Damped Lyman  $\alpha$  systems*. Advisors: Giovanni Vladilo (OATs) and Francesca Matteucci (OATs, DAUT).
- 2003–2007 **Bachelor degree in Physics**, *Università degli Studi di Trieste*, Trieste, Italy, 103/110.  
Thesis title: *X-ray indicators of cosmic star formation rate*. Advisors: Paolo Tozzi (OATs) and Francesca Matteucci (OATs, DAUT).
- 1998–2003 **Higschool Diploma**, *Liceo Scientifico Statale "G. Oberdan"*, Trieste, Italy, 100/100.

## Oral contributions

I had the opportunity to present my work at several meetings and international Conferences. Among the others:

- September 2013 **Conference "Setting a new standard in the analysis of binary stars"**, *Leuven, Belgium*, Contributed talk, "Probing AGB nucleosynthesis with binary stars".
- May 2013 **Anton Pannekoek Institute (API), Amsterdam University**, *Amsterdam, The Netherlands*, Invited talk, "Blowing in the wind: wind mass transfer & metal-poor stars".
- April 2013 **Kapteyn Institute, Groningen University**, *Groningen, The Netherlands*, Contributed talk, "Gone with the wind: effects of wind mass transfer in metal-poor stars".

- September 2012 **Monash University**, *Melbourne, Australia*, Invited talk, “The elusive origin of carbon-enhanced metal-poor stars”.
- August 2012 **Mount Stromlo Observatory**, *Canberra, Australia*, Invited talk, “Chit-chatting about CEMP stars”.
- March 2011 **Conference “Evolution of Compact Binaries”**, *Viña del Mar, Chile*, Contributed talk, “How did Carbon-Enhanced Metal-Poor stars form?”.

## Other conferences and workshops

- May 2013 **Dutch Astronomy Conference (NAC)**, *Lommel, Belgium*.
- August 2012 **Conference “Nuclei in the Cosmos XII”**, *Cairns, Australia*, Contributed poster (*awarded among others with the best-poster prize*).
- April 2012 **Conference “370 years of astronomy in Utrecht”**, *Nordwijkerhout, The Netherlands*, Contributed poster, “Gone with the wind: the elusive nature of CEMP stars”.
- May 2011 **Dutch Astronomy Conference (NAC)**, *Texel, The Netherlands*, Contributed poster, “The mysterious nature of carbon-enhance metal-poor stars”.
- August 2010 **Conference “Why galaxies care about AGB stars II”**, *Vienna, Austria*, Contributed poster, “Formation and evolution of CEMP stars”.
- May 2010 **Dutch Astronomy Conference (NAC)**, *Cuijk, The Netherlands*, Contributed poster, “Formation and evolution of carbon-enhanced metal-poor stars”.

## Languages

foreign	<b>English</b>	<i>good</i>
	<b>German</b>	<i>good</i>
	<b>Dutch</b>	<i>basic</i>
native	<b>Italian</b>	

## Computer skills

Programming	<b>Perl</b>	<i>good</i>
languages	<b>C</b>	<i>intermediate</i>
	<b>Python</b>	<i>basic</i>
Astrophysical	<b>binary_c</b>	<i>good</i>
software	<b>MIDAS</b>	<i>basic</i>

## Teaching experience and departmental activities

- Teaching I have been teaching assistant at several courses of the Master program in Astronomy. Among the others: *Nucleosynthesis*, *Binary stars* and *Cosmology*.
- Meetings Since 2010 I organise the weekly (currently biweekly) meeting of the *Stellar Evolution and Nucleosynthesis Group* at the Astronomy Department. In the academic year 2012-2013 I also organised the biweekly *Compact Binary meeting*. I regularly join the meetings of *Jorunal Club*, often suggesting and presenting new papers.
- Other activities I have been member of the Local Organising Committee for the conference “370 years of astronomy in Utrecht” held in Nordwijkerhout in April 2012. In November 2012 I helped to organise the activities of the astronomical department as part of the celebrations for the 75th anniversary of the Science Faculty.

---

## Refereed publications

- [1] (\*) C. Abate, O. R. Pols, R. G. Izzard, and A. I. Karakas. *Probing AGB nucleosynthesis with binary stars (I)*. submitted
- [2] C. Abate, O. R. Pols, R. G. Izzard, and A. I. Karakas. *Probing AGB nucleosynthesis with binary stars (II)*. in prep. (expected Jan. 2014)
- [3] (\*) C. Abate, O. R. Pols, R. G. Izzard, S. S. Mohamed, and S. E. de Mink. *Wind Roche-lobe overflow: Application to carbon-enhanced metal-poor stars*. *A&A*, 552:A26, April 2013.
- [4] C. Abate, O. R. Pols, R. G. Izzard, S. S. Mohamed, and S. E. de Mink. *The elusive origin of Carbon-Enhanced Metal-Poor stars*. *Nuclei in the Cosmos (NICXII)*, 2012.
- [5] (\*) G. Vladilo, C. Abate, J. Yin, G. Cescutti, and F. Matteucci. *Silicon depletion in damped Ly  $\alpha$  systems. The S/Zn method*. *A&A*, 530:A33, June 2011.

---

## Other publications

Abate, C., Pols, O. R., Izzard, R. G., & Karakas, A. I. *AGB nucleosynthesis at low metallicity: what can we learn from carbon- and s-elements-enhanced metal-poor stars.*, arXiv 1310.6859, October 2013

Abate, C., Pols, O. R., Izzard, R. G., Mohamed, S., & de Mink, S. E. *The elusive nature of carbon-enhanced metal-poor stars* ASPCS, 470:159, January 2013

Abate, C., Pols, O. R., Izzard, R. G., Mohamed, S., & de Mink, S. E. *How did Carbon-Enhanced Metal-Poor Stars form?* ASPCS, 447:81, September 2011

Abate, C., Pols, O. R., and Izzard, R. G. *Formation and evolution of carbon-enhanced metal-poor stars*. ASPCS, 445, September 2011

---

## Research interests

I am currently working on binary evolution at low metallicity, investigating how binary interaction modifies the chemical and dynamical properties of stars in binary systems. Particularly, I am interested in the effect of stellar winds. More in general, I am interested in the cycle that from the interstellar matter brings to the formation of stars and through the stellar evolution brings back to the interstellar matter. In the past I investigated the chemical properties of the dust in distant galaxies, in a study that combined models of galactic chemical evolution and the abundances observed in the interstellar gas of damped Lyman  $\alpha$  systems. More details about my research are provided in the dedicated attachment.