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Universiteit Leiden



The handle <http://hdl.handle.net/1887/24302> holds various files of this Leiden University dissertation

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Title: Modeling interstellar bubbles : near and far

Issue Date: 2014-02-20

Publications

1. *Line Emission from Radiation-Pressurized H II Regions I: Internal Structure and Line Ratios*
S. C. C. Yeh, **S. Verdolini**, M. R. Krumholz, C. D. Matzner,
A. G. G. M. Tielens
2013, ApJ, 769, 11
2. *Line Emission from Radiation-Pressurized H II Regions II: Dynamics and Population Synthesis*
S. Verdolini, S. C. C. Yeh, M. R. Krumholz, C. D. Matzner,
A. G. G. M. Tielens
2013, ApJ, 769, 12
3. *X-ray emission from stellar wind driven bubbles: An observational and theoretical study of the prototypical UltraCompact H II region, G29.96-0.02*
S. Verdolini, M. Raicevic, F. Tramper, A. Bik, A. de Koter, L. K. Townsley, P. S. Broos, E. D. Feigelson, A. G. G. M. Tielens
to be submitted
4. *A study of H II regions in NGC6822 and the distribution of SDSS starforming galaxies in the emission line diagnostic diagram*
S. Verdolini, L. R. Carlson, S. C. C. Yeh, M. Galametz, V. Lebouteiller, J. Brinchmann, A. G. G. M. Tielens
to be submitted
5. *Radiation pressure-driven dust wave inside bursting interstellar bubbles*
B.B. Ochsendorf, **S. Verdolini**, N.L.J. Cox, O. Berné, L. Kaper,
A. G. G. M. Tielens
to be submitted
6. *A class of champagne flow bubbles with radiation pressure-driven dust wave*
S. Verdolini, B.B. Ochsendorf, A. G. G. M. Tielens
to be submitted

Curriculum Vitae

I was born on May 7, 1984. I was raised in the beautiful countryside around the little town Cupramontana (Ancona, Italy). I went to the Liceo Scientifico Leonardo da Vinci in Jesi, where I realized that physics and math were fun.

In 2003 I began my bachelor study in astronomy at Università di Bologna (Laurea Triennale). In the summer of 2006 I graduated with a thesis on analytical studies of self-similar fluids. The following fall I began a Master degree (Laurea Specialistica) in astrophysics and cosmology at the same university. In 2007 I won a merit-based selection to study abroad, and spent the second year of the Master at University of California Santa Cruz. There I finished the compulsory courses, worked on my thesis of planet formation with Prof. Doug Lin, and learned how to surf. In March 2009 I received my degree at Università di Bologna.

In late 2009, I started a PhD in astronomy at the Sterrewacht Leiden (Leiden University) under supervision of Prof. A. G. G. M. Tielens. My research has been dedicated to the twofold investigation of the interaction of massive stars with their surroundings: I have analyzed observations of emission lines in H II regions to determine the physical conditions surrounding the formation of massive stars both in the near and far Universe; and I have studied the hydrodynamical evolution of these regions numerically. I developed and tested a radiative transfer code as implemented in the hydrodynamic code FLASH. I used the code to study the hydrodynamical evolution and resulting X-ray emission of a prototypical UltraCompact H II region.

During my PhD I participated in the NOVA fall school (Dwingeloo) and I spent the summer of 2010 at the ISIMA Summer School in Santa Cruz where I worked with Prof. dr. M. Krumholz, this resulted in two chapters for this thesis and inspiration for a third. I presented my research at international conferences in the Netherlands, Switzerland, Italy, and United States.

Ringraziamenti

It has been four terrible, yet fantastic, years! An incredible journey that thought me a lot – not just astronomy, luckily – and made me a better person (I hope). If I can say *I am done*, it is only thanks to the support of many people. All of you helped. Thanks!

All of this would not have been possible without Xander. Thanks for the encouragement and the enthusiasm for science. Thanks to the ISM group. In particular, I thank Alessandra for the many good advises, Lynn for the hard work we did together, and Francisco for constantly explaining observations to me. I would like to thank Chael for the great support he gave me in the first year of PhD. Thanks to Milan for guiding me through the intricacies of a code too big and complex for me to understand.

Once again, in the process of moving around the world, I found real friendship. I have never felt lonely from the first day I was in the Netherlands. Thanks Carina for your contagious laugh and for your unlimited energy and wisdom. Ernst, it is my time now to say that you are awesome! Thanks for keeping the promise we would stay in touch. Niruj, when you left there was a huge emptiness around. Thank you for unforgettable day you took me shopping in Amsterdam.

Un ringraziamento specialissimo alla mia "famiglia" a Leiden. Irene, grazie per il supporto in tutte quelle giornate da *goma del butano*, grazie per le passeggiate all'undicesimo piano e grazie per riuscire sempre a farmi ridere! Matteo, grazie per avermi insegnato l'estetica del plot e grazie per non esserti mai arrabbiato delle mie battute. Nicola, grazie per tutte quelle volte (tante) che sono entrata nel tuo ufficio con un problema numerico e ne sono uscita con una soluzione. Grazie per avermi ascoltata, capita ed essermi stato accanto in momenti difficili. Grazie ragazzi, per le *movies nights*, per i *birra crucis*, per le serate passate insieme a chiacchierare, e per tutti i momenti indimenticabili degli ultimi anni.

Thanja, thanks for dragging me to the gym, for the chats, and for sharing your cooking passion with me! Ringrazio Fabio per aver condiviso con me il suo hobby in numerose occasioni! Ringrazio Alessandra per le torte e per le giornate di shopping. Ringrazio Marco per il *better green*. Berenice and Mattia, thanks for the microwaves! Pedro, thanks for introducing me to the fascinating world of outreach. Jaya, thanks for the yummy Indian food and for your positive energy. Carolina, Kevin, and Xavier, each time you visit you bring sunshine with you!

Sahar, most of this thesis is your "fault", I guess I should thank you for it. You are like a sister. Even if so far away, you are always with me. Thank you for constantly encouraging me.

Un grazie di cuore a tutti coloro che mi sono venuti a trovare nella fredda Olanda in questi quattro anni e ai tanti che verranno per vedermi diventare dottoressa. Grazie mille a tutti! Madda, Giacomo e Andrea, grazie mille per esserci da sempre!

Grazie di cuore alla mia famiglia. Babbo, mamma, Giulia, questa tesi è per voi. Siete la mia forza. Grazie per avermi rimesso in piedi più di una volta. Non sarei mai riuscita a finire questa tesi se non avessi avuto la certezza di trovarvi sempre al mio fianco. Grazie ai nonni, agli zii, ai cugini, al nipotino più bello che ci sia e a quello che verrà.