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The Great Collapse

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Citation

Caputo, D. P. (2015, January 22). *The Great Collapse*. PhD Thesis. Retrieved from <https://hdl.handle.net/1887/31710>

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Author: Caputo, Daniel P.

Title: The Great Collapse

Issue Date: 2015-01-22

List of publications

Peer-Reviewed Publications

- *Rapid Mass Segregation in Collapsing Clusters*
D. Caputo, N. de Vries, and S. F. Portegies Zwart.
(In preparation)
- *On Estimating the Total Number of Intermediate Mass Black Holes*
D. Caputo, N. de Vries, A. Patruno, and S. F. Portegies Zwart.
(Submitted to Monthly Notices of the Royal Astronomical Society)
- *On the Effects of Subvirial Initial Conditions
and the Birth Temperature of R136*
D. Caputo, N. de Vries, and S. F. Portegies Zwart.
Monthly Notices of the Royal Astronomical Society, 445:674-685, November 2014.
doi10.1093/mnras/stu1769
- *Asymmetric Supernova in Hierarchical Multiple Star Systems and
Application to J1903+0327*
J. T. Pijloo, D. Caputo, and S. F. Portegies Zwart.
Monthly Notices of the Royal Astronomical Society, 424:2914-2925,
August 2012.
doi10.1111/j.1365-2966.2012.21431.x
- *Cellular-Swarm Optimization: A Scalable Multimodal Swarm Optimizer*
R. Dolan, D. Caputo, and G. DeSouza.
2012 IEEE Congress on Evolutionary Computation
- *The Swarm Computer, an Analog Cellular-Swarm Hybrid Architecture*
R. Dolan, G. DeSouza, and D. Caputo.
Hybrid Intelligent Systems 2010, 119-124, 2010.
doi/10.1109/HIS.2010.5600079.

Selected Conference Proceedings and Presentations

- *Fishing on the Sea of Big Data: The Swarming Agent Method*
D. Caputo and R. Dolan.
TarGet Conference 2014, November 2014.
- *Searching for Data: Swarming Agent Method*
D. Caputo, and R. Dolan.
Advances in Computational Astrophysics: Methods, Tools, and Outcome, Volume 453 of Astronomical Society of the Pacific Conference Series, July 2012.
- *PAH Formation: 3.3 And 11.3 μm Data*
D. Caputo, A. Speck, K. Volk, M. Barlow, and R. Wesson.
American Astronomical Society Meeting #214, May 2009.

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Curriculum Vitae

I was born on February 23, 1981 in Worcester, Massachusetts in the United States of America. In 1986, I moved to St. Louis, Missouri where I would complete my primary and secondary education. In 2008, I graduated with a Bachelor's degree in Physics from the University of Missouri. After graduation, I began my Master's degree in Physics, with a focus on Astronomy at the University of Missouri with Prof. Dr. Angela Speck. During my time there, I did research in observational Astrophysics, specifically PAHs (Polycyclic Aromatic Hydrocarbons). I was granted time twice, as the primary investigator, on the Gemini North telescope in Hawaii. I was also awarded the Chambliss Medal for exemplary research from the American Astronomical Society for my work on PAH's. I completed my Master's thesis, "Investigating the formation mechanism of Polycyclic Aromatic Hydrocarbons and adapting particle swarm optimization techniques to search large data sets" in 2010. Later that same year I started my PhD position with Prof. Dr. Simon Portegies Zwart at Leiden University in The Netherlands in computational astrophysics.

Acknowledgements

This thesis would not have happened without the friendship, help, guidance, and support of many people to whom I owe a debt of gratitude. This list of thanks is both inadequate to repay the debt and incomplete in its scope.

First, I thank God for the desire to understand and the subject matter to study. It is a truly beautiful creation.

I am blessed to have such a wonderful family. Samantha you have been my friend, support, confidant, and encourager, you have both lifted me up and grounded me. I am thankful everyday for you and your love. My life would be more shallow without you, it is as if you have added a new dimension to my life that I was previously unaware of. And I continue to be thankful that you have graciously yet to realize just how out of my league you are. I hope you have enjoyed our four-year, European honeymoon as much as I have.

Eleanor and Jonas if it were not for you I would have finished this thesis a whole year earlier, but there would be so much less joy in my life, I wouldn't trade a second of it. I am so proud to be your father and I love watching you grow. I cannot wait to teach you about the mysteries of life, the Universe, and everything (well at least somethings).

Mom, thank you for all of your love throughout the years, it has helped form me into the man I have become. I suppose now you cannot give me a hard time about "not finishing my education". Kim and Jerry, thank you for letting me whisk your daughter away to Europe, and for not holding it against me.

Several people played key roles in the work I have done over the past several years. Nathan your support, help, and ideas were fundamental to this thesis and its completion; your friendship has meant a great deal to me, more than you know, and I thank you for giving it so freely. Xander without your wisdom and guidance I would have missed the mark, thank you. Alessandro you have been a wonderful sounding board, whether about the philosophy of science or reassuring me that astronomical numbers are okay in astronomy. Simon thank you

for the opportunity to marvel at the Universe with you and for your scientific insight.

Many work colleges have become close friends. Jeroen and Alex thank you for all the great times and laughs in and out of our office. Jeroen, many thanks for translating the summary to Dutch. I have enjoyed getting to know both of you and I could not have asked for better officemates or friends. Steven I have always enjoyed playing chess with you, as well as your photography, and even your pun-laden humor, thank you for all you have shared with me. Xiaohu, you always have a kind and encouraging word, thank you for friendship. Adrian our conversations have been very enjoyable, as were the dinners and piano music. Thank you for inviting me over. Thank you Edwin for being my HLX-1 buddy, for listening to all of my ideas and only laughing a little. Masaki I wish you many more wonderful late nights, thank you for sharing a few of them with me.

I have been very fortunate to have been in such a dynamic and interesting research group. Arjen, Inti, and Marcell thank you for all of the AMUSE lessons and bug fixes. Tjarda, Thomas, Lucy, Carmon, and the rest of the Castle group (past and present) thank you for the conversations, the challenging thoughts, and the fun times.

I have had the joy of supervising two amazing students, both of whom truly exceeded my expectation. Tjibaria and Huibert thank you both for letting me be a part of your development, and I look forward to seeing what your bright futures hold.

Over the years in Leiden I have had the pleasure of getting to know some wonderful people, both in and out of the University. Evghenii I cannot recall how we first became friends, but I sure am glad that we did; our conversations have been thought provoking and rich with new ideas. Ed, I have shared more meals with you than with anyone I am not related to, and it has been a pleasure to share them with you. Samuël and Kindra thank you both for sharing your life, your families, and Middelburg with us. Chris I remain impressed with your strength and your kindness.

There are several advisors, friends, and teachers from the past who continue to have a strong impact on me. Angela I would never have come this far it were not for your great teaching and for your wonderful mentorship; you have been a bright light in my life. Aigen thank you for the very timely encouragement early on, you gave me strength to continue. Paul, your voice to pursue excellence remains with me.