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The Great Collapse

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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.
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- *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.

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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

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