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The spin evolution of accreting and radio pulsars in binary systems

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Publications

Refereed Publications

The X-ray pulsar 2A 1822-371 as a super-Eddington source

A. Bak Nielsen, A. Patruno, C. D'Angelo, 2017, Mon. Not. R. Astron. Soc., **468**, 824.

The low-luminosity behaviour of the 4U 0115+63 Be/X-ray transient

A. Rouco Escorial, **A. Bak Nielsen**, R. Wijnands, Y. Cavecchi, N. Degenaar, A. Patruno, 2017, Mon. Not. R. Astron. Soc., **472**, 1802.

Coherent variability of GX 1+4

A. Bak Nielsen, A. Patruno, 2018, Mon. Not. R. Astron. Soc., **479**, 353.

Early gray dust formation in the type II_n SN 2005ip

A. B. Nielsen, J. Hjorth, C. Gall, 2018, A&A, **611**, 67.

Publications in Preparation

A study of timing stability of Black Widow pulsars

A. Bak Nielsen, G. Janssen, G. Shaifullah, J. Verbiest, L. Guillemot, B. Stappers, A. Possenti, and the EPTA collaboration , *In prep.*

Curriculum Vitae

I was born on 14 November 1990 in Odense, Denmark. I always looked up at the night sky in fascination, although I had no ambition to become a physicist as a kid, I wanted to be a vet and live in Kenya. That quickly changed when I had my first physics lesson in 7th grade. The lesson was about Niels Bohr's model of the atom, which, to my 14 year old self, seemed to make perfect sense. After I finished school in 2006 I went on to attend Gymnasium at Odense Katedral skole. There I further developed a taste for physics and science in general, and upon graduating I applied to continue my education at University of Copenhagen studying physics. I began my university education, in Copenhagen, in 2009. I was planning on becoming a particle physicist, but quickly found out that my interests were in astronomy and not particle physics. I decided to take the astronomy courses offered, and I graduated with a bachelor degree in physics & astronomy in 2012. I did my bachelor thesis on the evolution of dust in the Milky Way under supervision of then Dr. and now Prof. Anja C. Andersen. I then went on to doing my Master thesis at the University of Copenhagen, graduating in 2014, where I worked with Prof. Jens Hjorth on early dust formation in type II supernovae.

I was still intrigued with astronomy and wanted to learn more, so I embarked on the process of applying to PhD positions. In the fall of 2014 I was fortunate enough to begin my PhD at Leiden Observatory under supervision of Dr. Alessandro Patruno. It is the result of that PhD which you can read in this thesis. During my PhD I have present my work at various conferences in the US, Italy, England and Russia.

The next step in my academic life will be as a PostDoc at Bielefeld University, in Germany, in collaboration with the Max Planck Institute for Radio Astronomy, working on radio pulsars.

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Nico and Wijnand, I more or less had two roommates for the price of one with you guys, and I could not have been happier. You are such kind and amazing people.

To the three other Danes I meet when I moved here, thank you! Christian, our house would not have been complete without you in it, it was a year of lots of fun and fights, and I can not tell you how much I appreciate that you are loud and outgoing and at times frustrating, but also great support on rainy days.

When I moved here I did not really know anyone, but I soon found a friend, a gym mate and someone I can always come to in Eva. You are a big support and I can not thank you enough for being there for tears, stress, happiness and some dating advise. Henriette, you are fun, kind and welcoming to a strange danish girl, and I am so happy to have gotten to know you!

When studying at University of Copenhagen I meet Anna, Rikke and Karin. You girls have been there every step of the way and even when months pass between seeing each other, it feels like home when we do. I am so grateful to call you friends.

Sofie, thank you for our movie nights and for making Copenhagen a friendly place with a fellow fynbo, and for continuing to do so. Marie Louise we have know each other for something like 20 years, how did time pass this fast? I still remember the movie nights. I am so happy to have been able to call you my friend for so long and even happier to continue so for the next many years.

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