

November 14, 2012

To

whom it may concern

Letter of recommendation for Sara Rydbeck

I write this letter of recommendation for Sara Rydbeck, who is applying for a postdoc position. I was the main supervisor of Sara Rydbeck for her PhD and I wish to recommend her for the position she is applying to.

Sara started her PhD studies working on modifications of general relativity and implications for supernovae observations. This work was started together with a postdoc in our group, Malcolm Fairbairn, and was rather theoretical in nature. Even though Malcolm moved on to other positions, Sara finished these very nice works very well.

After this, she profiled herself more towards particle astrophysics with emphasis on what the implications are for dark matter models from Large Hadron Collider (LHC) data. This work was mainly performed with another PhD student in our group. In the first paper on this topic, Sara investigated early discovery signals for supersymmetry without using a missing transverse energy cut. In this work, Sara used many different techniques and tools to calculate all the necessary steps from the production cross section, event generation and detector simulation, both for signals and backgrounds. As this was a new field to her (and our group), she had to learn many new things, which she did very well. In this process she showed all the signs that distinguish a good researcher: persistency, enthusiasm, willingness to work hard, both by herself and with others, capability of learning new things quickly and determination to finish the project. It was not an easy project to pursue, and has understandably taken quite some time to finish, but Sara managed very well. In light of the data coming from the LHC, Sara is now very well prepared to analyse and understand the implications of a possible deviation from the standard model.

After her PhD she continued to work on a similar analysis, but for the inert Higgs doublet model. This work was started on her own initiative, and was carried out together with two former PhD students of the group, more or less on their own. The paper took much longer to finish than expected, but is now published in Phys. Rev. D (arXiv:1206.6316). I think Sara has learnt a lot in this process and the paper is a solid work in the field with a very careful study of the subject. It is my understanding that Sara also has ongoing projects with the group in DESY where she is currently a postdoc. I presume others will comment on this work.

For the future, Sara has shown a strong interest in other searches for new physics, mainly indirect and direct dark matter searches. This interest also reflected in the courses she has taken during her PhD which have ranged all the way from particle physics to astrophysics and cosmology, with both theoretical and more ex-

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perimental courses. She has also started looking into how future LHC data can be used in global fits, together with data from dark matter search experiments. With this interest and her solid physics and astrophysics background, she should be very well prepared to analyse/understand upcoming data.

Sara is also very interested in public outreach, and has e.g. participated in big events for 11-year old kids which ask a panel of scientists questions. She has also been interviewed in Swedish public television in a science program on gravity. She is also very interested in teaching and has, together with one professor at the department, developed a course about physics and gender that took place for the first time in the spring of 2011 (and runs yearly since then).

Sara is also a person that is very easy to work with and a welcome addition to any research group.

So, to summarize, with her research profile and qualities as a researcher, I am sure she will perform very well and I recommend her for the position she is applying to.

If you have any further questions, please don't hesitate to ask me.

Sincerely,



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