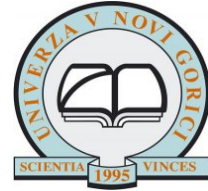


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01. 03. 2023.

Recommendation to award the degree of habilitated doctor to dr. Andrzej Hryczuk

After examining the documentation I received, I am very pleased to support the awarding of the degree of a doctor habilitated in the field of natural sciences in the discipline of physical sciences to dr. Andrzej Hryczuk.

Dr. Andrzej Hryczuk received his PhD degree from the Interational School for Advances Studies, (SISSA) in Italy, in 2012, under the supervision of Prof. Piero Ullio.

After that dr. Hryczuk worked as a postdoctoral researcher at several top-level European institutions, such as TUM in Munich, University of Oslo, Norway and NCJB in Poland. Currently dr. Hryczuk works as an Assistant professor at the NCJB.

He published a number of important works in his research field of dark matter phenomenology and beyond standard model physics, with a focus on the Early Universe cosmology and thermal decoupling of dark matter particles.

The habilitation documentation he prepared describing his research program shows that dr. Hryczuk is a mature scientists in high command of his research field, and that he is capable of independent and original thinking.

The research topic he works on is highly relevant. The questions that dr. Hryczuk examined throughout his career are 'What is the nature of dark matter and what is its origin'. A large scientific community works on these puzzles, and its implications on the Standard model phenomenology. In addition, a number of multi-million euro experiments are built and being constructed with these scientific goals as their priority, witnessing to the fact that dr. Hryczuk research topic is highly relevant and timely.

His contribution to the filed is highly significant. He published around 20 papers in high impact journals with a variegated list of collaborators from a wide range of institutions. That witnessed to his research capabilities, leadership and visibility within the international research community.

With his collaborators he also developed a publicly available numerical code DRAKE, which is a significant contribution to the community. The code solves Boltzmann equations describing dark matter decoupling in the early universe that goes beyond standard calculations.

He won two grants from the National Science Center in Poland, in 2018 and again in 2021, further proving his research excellence and independence.

He also has a significant teaching experience, both at the Warsaw University and abroad (at TUM, Germany and University of Oslo, Norway). He supervised three MS student and informally supervised one PhD student.

He is active in outreach, which is an important service of any modern day scientists. He also organized a number of scientific meetings and gave a number of talks at international meetings further increasing his visibility on the international scientific community.

Having evaluated all these aspects of dr. Hryczuk carrier a picture of mature and highly capable scientists emerges. I therefore recommend him for the title of a doctor habilitated in the field of natural sciences (physics) without hesitation.

Prof. Dr. Gabrijela Zaharijas

A handwritten signature in black ink, reading "Gabrijela Zaharijas". The signature is written in a cursive, flowing style.