



UNIVERSITÀ DI TORINO
DIPARTIMENTO DI FISICA
SEZIONE DI FISICA TEORICA

Torino, 20 February 2012

LETTER OF RECOMMENDATION FOR DR. SHIBI RAJAGOPALAN

I am writing this letter to support Shibi Rajagopalan's application for a postdoctoral fellowship in your Institute.

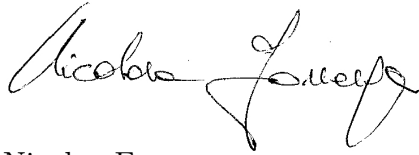
I know Shibi since more than one year: I first met Shibi during a seminar he gave in our Department in 2011 and then during a visit at CERN the same year. From the seminar, where he discussed with great competence a complex analysis of non-thermal production of dark matter in the early Universe, and from discussion I had with him at CERN regarding various aspects of dark matter phenomenology, I found Shibi a quite promising young researcher and I was then very happy to have him in my group as an INFN postdoctoral fellow in the fall of last year, a position he is currently holding.

When Shibi joined our group, we started a collaboration on the study of the interplay between particle dark matter phenomenology at the LHC and its corresponding indirect detection signals searched for in the astrophysical environment. The project we decided to set up consists in building the whole and quite complex numerical techniques required to predict LHC signatures for those particle physics models where a dark matter candidate is present and is looked for in indirect detection signals of dark matter. This technique required to build all the numerical procedures that start from the lagrangian of a new-physics models, go through the generation of particle physics events in proton-proton collisions at the LHC, move to the simulation of the detector features and finally realize data-analyses on the Monte Carlo generated events and try to identify suitable signatures at the LHC. The whole process is quite complex, and we decided to start with a study of monojet events in inert dark matter models. Shibi has an exceptional ability in performing quite complex calculations and numerical studies, and he has now been able to set up, basically all by himself, all the required techniques. We are now close to conclude this first analysis, and our goal is then to move to more complex and theoretically motivated models, specifically supersymmetric frameworks. A publication on this first study is expected soon, and during the second year Shibi will spend in Torino we intend to perform a large number of analyses.

My opinion on Shibi is that he is very skilled, especially from the technical and numerical side. I rarely found a colleague more talented in this respect. He has a very good knowledge and understanding of particle physics beyond the Standard Model and of cosmological

implications of dark matter candidates. I therefore feel confident to recommend Shibi for a postdoctoral position in your group. I am convinced that he has all the required capabilities to perform scientific research at the highest level.

With my best regards

A handwritten signature in black ink, reading "Nicolao Fornengo". The signature is fluid and cursive, with the first name "Nicolao" and the last name "Fornengo" clearly distinguishable.

Nicolao Fornengo
Associate Professor of Theoretical Physics

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