1st ICTP-Trieste/ICTP-SAIFR School on Particle Physics: Dark Matter and Particle Physics – Some References

Patrick J. Fox*

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There are many good textbooks and reviews related to dark matter. Two standard textbooks that discuss cosmology, the observations that support the DM hypothesis, and describe freeze-out, Boltzmann equations *etc* are the "The Early Universe" by Kolb and Turner [1] and the more up to date "Modern Cosmology" by Dodelson [2]. I also find the PDG [3] a good resource. There are also several extensive online resources, two of note are by Yann Mambrini [4] and Flip Tanedo [5]. There are some good TASI lectures on this topic *e.g.* Mariangela Lisanti's lectures [6] and some reviews *e.g.* [7].

In terms of the topics we covered in lectures: the discussion of co-annihilations follows the classic paper by Edsjo and Gondolo [8]. The case of coannihilation and the two other exceptions to the usual freeze-out calculation are elucidated in Griest and Seckel's paper [9]. Freeze-in is reviewed in [10]. For all the background material, formalism *etc* necessary to do calculations of direct detection rates see the classic review by Lewin and Smith [11], augmented by the more up to date determination of the Earth's velocity in [12]. Indirect detection is well described in the "cookbook" by Cirelli *et al.* [13]. There is a similar volume for signals of DM capture in the Sun by some of the same authors [14]. DM at colliders has had much written about it, for a review of simplified models see [15] or [16].

Of course, there are many interesting papers out there and this list has just scratched the surface. I did not even get a chance to talk about axions, or many details of non-WIMP models. A large, and somewhat overwhelming, document that contains descriptions of the situation with regard to non-WIMP DM, as well as references to many classic papers is [17].

Happy Reading!

References

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*pjfox@fnal.gov

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[17] M. Battaglieri et al., *US Cosmic Visions: New Ideas in Dark Matter 2017: Community Report*, 1707.04591.