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Mechanical mass loss in very metal poor massive stars

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Mass loss is expected to be very low at very low metallicities, even more for the first generations of stars. A lower mass loss induces a lower angular momentum lost during the main sequence, resulting in faster rotators. As the surface velocity increases, due to internal angular momentum transport from the core to the surface, the first stars reach critical velocity at their surface way easier than solar metallicities stars. The angular momentum excess is then needed to be lost through mechanical mass loss processes to remain subcritical. We discuss here the intensity of these mechanical mass loss rates for Pop III massive stars during the Main-Sequence phase and for very metal poor stars. We study how these mass loss rates may depend on the initial metallicity and also on the treatment of the angular momentum inside the stars. We also discuss some possible consequences of these mechanical mass losses on the evolution of very metal poor stars. Finally we study the cases of Be stars that may be stars losing masses by mechanical mass loss. However, reaching the critical limit may not be the key factor explaining the mass losses of these stars. Some other processes like pulsations may be important. To which extent these other processes may also play a role in Pop III and very metal poor stars is still an open question.

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