Transport of angular momentum and chemical elements by magnetic fields in stellar radiative zones

In this talk, we will present a recent work aiming at characterising the efficiency of angular momentum and chemical element transport by magnetic fields in stably stratified radiative stellar interiors. We focus in particular on the magnetorotational instability and associated dynamo action which drives turbulence and transport. We will discuss the results of a large set of 3D MHD numerical simulations of this mechanism, showing that magnetic fields are indeed able to efficiently transport angular momentum and chemical elements in stellar radiative zones. We propose possible scaling laws for the magnetic transport, to be reintroduced in new generation 1D stellar evolution models.