Iron-60 is a short-lived radionuclide (SR) with half-life $T_{1/2} = 1.5$ Myr. Unlike other SRs which can also be made in the protoplanetary disk via irradiation of dust/gas by accelerated energetic particles [1], $^{60}$Fe is only produced efficiently by stellar nucleosynthesis. As such, $^{60}$Fe provides important clues about the immediate stellar environment of the nascent solar system [2].

It is extremely unlikely $^{60}$Fe was injected by a nearby supernova (SN) in the solar protoplanetary disk [3] or by an Asymptotic Giant Branch star in the progenitor molecular cloud [5]. It was recently suggested that relatively high concentrations of $^{60}$Fe and other SRs are expected in molecular clouds (MCs) due to pollution of distant SNe belonging to previous generations of stars [6]. In this model, delivery of $^{60}$Fe takes place while the MC is being built by large scale turbulent flows, i.e. during a proto-MC phase.

This model, dubbed SPACE for Supernova Propagation And Cloud Enrichment, relies on the assumption that SNe ejecta and especially $^{60}$Fe atoms locked in μm-sized dust grains mix well with the low-density gas of the proto-MCs. To test this idea, we are performing 3D numerical simulations using the RAMSES-MHD code [7]. The code solves the MHD equations using Godunov-type methods and includes self-gravity. The code has been implemented to include supernovae whose shockwaves are the source of converging flows. These converging flows of warm neutral gas provoke the formation of cold neutral gas [8-10]. Once enough cold gas has been formed, gravity takes over and the system reaches a state similar to those of observed MCs. Special attention has been paid to the cooling function to modelize properly the mixing of the supernova ejecta with the interstellar medium gas. Passively advected particles representing $^{60}$Fe nuclei are introduced in the simulation at a time corresponding to SNe explosions with abundances given by SN nucleosynthetic models [11]. Results concerning the degree of mixing between SNe ejecta and interstellar medium gas as well the amount of $^{60}$Fe expected in molecular clouds will be presented at the conference.