GERMANIUM ISOTOPIC DISTRIBUTION IN ORDINARY CHONDRITES. INFERENCE ON METAL FORMATION AND EVOLUTION OF PLANETESIMALS.

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Ordinary chondrites (OCs) are undifferentiated meteorites composed of an assemblage of primitive components that underwent thermal metamorphism on their parent body. This has been modeled in an "onion shell" structure [5], or through impact and reassembly mechanisms [3]. In order to study the thermodynamic conditions of formation, we have investigated germanium elemental and isotopic variation of metallic, silicates and sulfide phases through H, L and LL ordinary chondrite (OCs) sequences from all metamorphic types, at various shock stages.

The first Ge isotopic measurements of bulk and separate phases (metal, sulfides and silicates) of selected H, L and LL OCs have been performed at the CRPG [1,2]. Ge concentrations and $\delta^{74/70}$ Ge isotopic composition increases from H to LL groups but with no significant isotopic variations with metamorphic or shock grades. Germanium isotopic fractionation between silicate, metal and sulfide gives $\Delta_{met/sil}$=+0.18‰ and $\Delta_{met/sulf}$=+1.08‰, confirming the direction of metal-silicate isotopic fractionation [2]. No significant Ge isotopic fractionation between metal and bulk sample implies that Ge is mainly hosted by the metal phase. The positive correlation between $\delta^{74/70}$Ge values and %Fa content in olivine, a redox proxy [4], from H to LL OCs, suggest that Ge isotopes fractionate with redox effect. Two overprinted redox evolution during condensation and metamorphism, will be examined.

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