1. Record Nr. UNINA9910572180903321 Autore Colzi Laura Titolo Isotopic fractionation study towards massive star-forming regions across the Galaxy / / Laura Colzi Pubbl/distr/stampa Firenze, Italy:,: Firenze University Press,, [2021] ©2021 Descrizione fisica 1 online resource (226 pages): illustrations Collana Premio tesi di dottorato ; ; Volume 91 Disciplina 523.88 Soggetti Stars - Formation Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references. Sommario/riassunto One of the most important tools to investigate the chemical history of our Galaxy and our own Solar System is to measure the isotopic fractionation of chemical elements. In the present study new astronomical observations devoted to the study of hydrogen and nitrogen fractionation (D/H and 14N/15N ratios) of molecules, towards massive star-forming regions in different evolutionary phases, have been presented. Moreover, a new detailed theoretical study of carbon fractionation, 12C/13C ratios, has been done. One of the main results was the confirmation that the 14N/15N ratio increases with the galactocentric distance, as predicted by stellar nucleosynthesis Galactic chemical evolution models. This work gives new important inputs on the understanding of local chemical processes that favor the

production of molecules with different isotopes in star-forming

regions.