Gamma-Ray Line Astrophysics

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The Compton Observatory instruments have measured several γ-ray lines, both from individual supernovae as well as from the diffuse interstellar medium. At this late phase of CGRO's mission, we will review the astrophysical achievements by these observations of Galactic 511 keV annihilation radiation, supernova lines at 78, 122, 847, 1238, and 1157 keV from ^{44}Ti and Co isotopes, and diffuse 1809 keV radioactivity emission from ^{26}Al. We will discuss constraints on other candidate lines such as ^{7}Be and ^{22}Na radioactivities from novae, and nuclear ^{12}C and ^{16}O de-excitation lines from Orion or the inner Galaxy. The lessons from CGRO will be put in perspective with other experiments of the past and future.