New theoretical results concerning gamma-ray emission from classical novae

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New results concerning the synthesis of radioactive elements in classical nova explosions will be presented, together with their influence on the gamma-ray emission from these objects and the prospects for the detectability with present and future instruments. The isotopes involved in gamma-ray emission from classical novae are ^{13}N, ^{18}F, ^{7}Be, ^{22}Na and ^{26}Al. Both ^{13}N and ^{18}F are crucial for the short duration annihilation emission, at 511 keV and below, that is emitted during the first hours after the outburst, before the nova maximum in visual magnitude. New recent results concerning the nuclear reaction rates involved in ^{18}F destruction have been incorporated into our hydrodynamic code, which models the nova explosion with a detailed follow up of the associated nucleosynthesis. As a result of the larger rates of ^{18}F destruction through proton captures, this isotope is produced in smaller quantities (typically by a factor of 10), leading to smaller fluxes in the 30-511 keV range. Concerning the medium and long lived isotopes, the implementation of the latest reaction rates available in the NeNa-MgAl cycles provides an enhanced ^{22}Na production with respect to previous results, leading to a larger 1275 keV flux emitted through its decay. ^{26}Al is practically unchanged. The implications of our new results for the observability of novae by CGRO and by the future INTEGRAL instruments will be addressed.