NEW ISOTOPES ^{181}Ir, ^{180}Ir, ^{178}Ir

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New neutron-deficient Ir isotopes have been produced by irradiating 4 mg/cm^2 Ho and Tm targets in the external beam of the Dubna U-300 cyclotron in the reactions $^{165}Ho(^{22}Ne,6n)^{181}Ir$, $^{169}Tm(^{16}O,4n)^{181}Ir$, $^{165}Ho(^{22}Ne,7n)^{180}Ir$, $^{169}Tm(^{16}O,5n)^{180}Ir$ and $^{169}Tm(^{16}O,7n)^{178}Ir$.

The mass assignment of Ir isotopes have been established by gamma measurements with a Ge(Li) detector (13cm^3 sensitive volume) and by measuring the excitation functions.

^{181}Ir: The ^{181}Ir isotope has been identified by studying the genetic relationship with 2.7 min ^{181}Os isotopes[1]. Its half-life has been determined by measuring the intensity decrease of the ^{181}Os decay gamma transitions with energies of 118.0 and 144.7 KeV[1] and it is (5.0 ± 0.3) min. About 20 new transitions have been observed in the ^{181}Ir decay.

^{180}Ir: This isotope has been observed by measuring the intensity decrease of the gamma transitions with the energies of 132 and 276 KeV de-exciting the levels of the ground state rotational band ^{180}Os[2]. The half-life of ^{180}Ir is (1.5 ± 0.1) min.

^{178}Ir: From the observation of gamma-transitions with the energies of 132 and 266 KeV de-exciting the levels of the ground state rotational band ^{178}Os[2], the isotope ^{178}Ir decaying with a half-life of (0.5 ± 0.3) min has been identified.

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References

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