Mendelevium (Z=101) and Lawrencium (Z=103) isotopes have been discovered nearly 50 years ago at Berkeley and Dubna. However, very scarce information on their structure has been obtained up to now. For instance, the ground state spin and parity of most Md and Lr isotopes remain uncertain. The properties of Transfermium elements are however of great interest for the structure of the heaviest elements. They are entirely stabilized by shell effects; they are deformed and some of their orbitals are also involved in the structure of spherical super-heavy elements. Detailed spectroscopy is therefore essential to move toward a better understanding of the limits of stability. Odd nuclei are crucial, since they provide information on the single-particle structure of the Transfermium elements.

We will present recent results obtained in proton-odd transfermium isotopes $^{247}$Es, $^{251}$Md and $^{255}$Lr. Single-particle states have been studied at GANIL and the University of Jyväskylä using $\gamma$ and electron spectroscopy after $\alpha$ decay of $^{255}$Lr. Low-lying single-particles states have been identified and assigned for the first time. In particular, the $[521]1/2^-$ orbital down-sloping from the $2f_{5/2}$ spherical shell has been observed. Prompt $\gamma$-ray spectroscopy of $^{251}$Md and $^{255}$Lr was performed at Jyväskylä using the Jurogam array coupled to the RITU separator. Collective properties have been observed for the first time in these two isotopes. Experimental results will be presented and compared to new Skyrme-HFB calculations.