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# Is there a carbon-depleted population in the trans-neptunian belt?

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Recent results suggest that there is a group of trans-Neptunian objects (TNOs), 2003 $EL_{61}$ being the biggest member, with similar dynamical and physical characteristics (Brown et al. 2007, Pinilla-Alonso et al. 2007).
All these objects are concentrated in a narrow region of the orbital parameters space ($41.6 < a < 43.6$ AU, $25.8 < i < 28.2$ deg, $0.10 < e < 0.19$) which seems to suggest a common origin for all of them. Brown et al. (2007) assert that all the objects in this group are fragments produced by a catastrophic collision suffered by 2003 $EL_{61}$. Although this scenario appears promising, it has several problems that need to be further investigated.
The spectra of these objects show the same characteristics, they are neutral in the visible ($S' \sim 0$) and all of them present much deeper water ice absorption bands ($D$ >40 %) than any other TNO, except Charon. A detailed study of the surface of (145453) 2005 $RR_{43}$ (Pinilla-Alonso et al. 2007) reveals that this small TNO is covered by almost pure water ice and scattering models show that a significant fraction of it is in crystalline state, despite of being one of the smallest members of the group. Furthermore the presence of complex organics is very low (with an upper limit of 5%). The lack of complex organics in the surface of 2005 $RR_{43}$ and other members of the group suggests a significantly smaller fraction of carbonaceous volatiles like $CH_4$ in

this population than in "normal" TNOs. As Pinilla-Alonso et al. (2007) suggest, such carbon-depleted population of TNOs could be the origin of the population of carbon-depleted Jupiter family comets described by A'Hearn et al. (1995).
In this presentation we discuss the spectral characteristics of this water ice rich group of TNOs and the possible relation between them and the population of carbon-depleted comets.