# The intriguing Tina asteroid family: a compositional investigation

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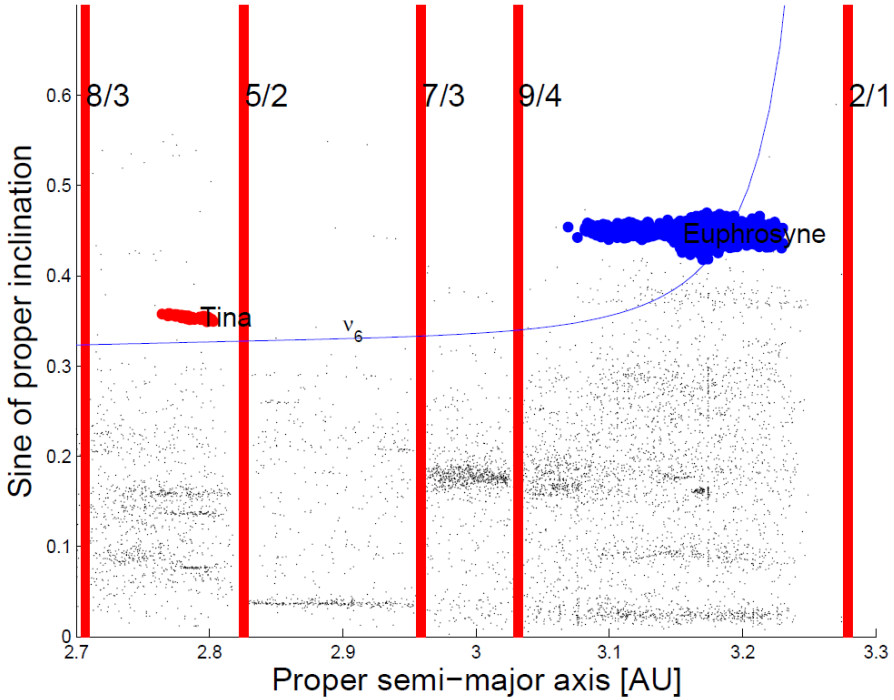
# The Tina asteroid family

**The only family in the main belt to be completely embedded in a secular resonance (ν6) stable island configuration.**

- 96 members
- Age ~ 140-190 Myr
- Limited eccentricities, no planet crossings
  → Ideal case to study non-gravitational forces and/or original ejection velocity field




**(1222) Tina:**

- X-type spectrum (SMASS)
- $p_V = 0.202 \pm 0.045$
- $D = 25.78 \pm 0.14$ km (NEOWISE)

**Metallic asteroid?**

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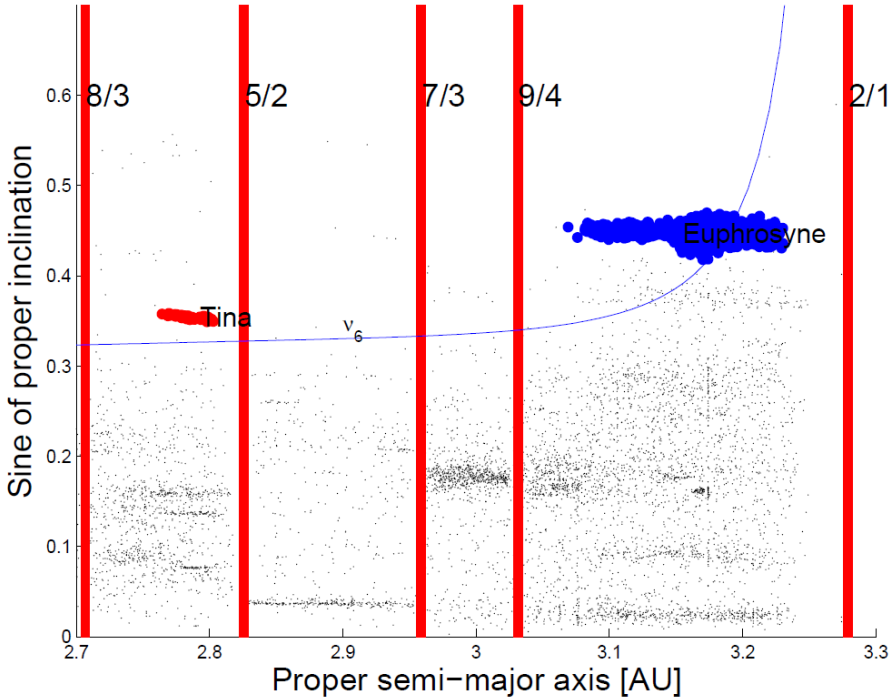


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- X-type spectrum (SMASS)
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**Metallic asteroid?** BUT:

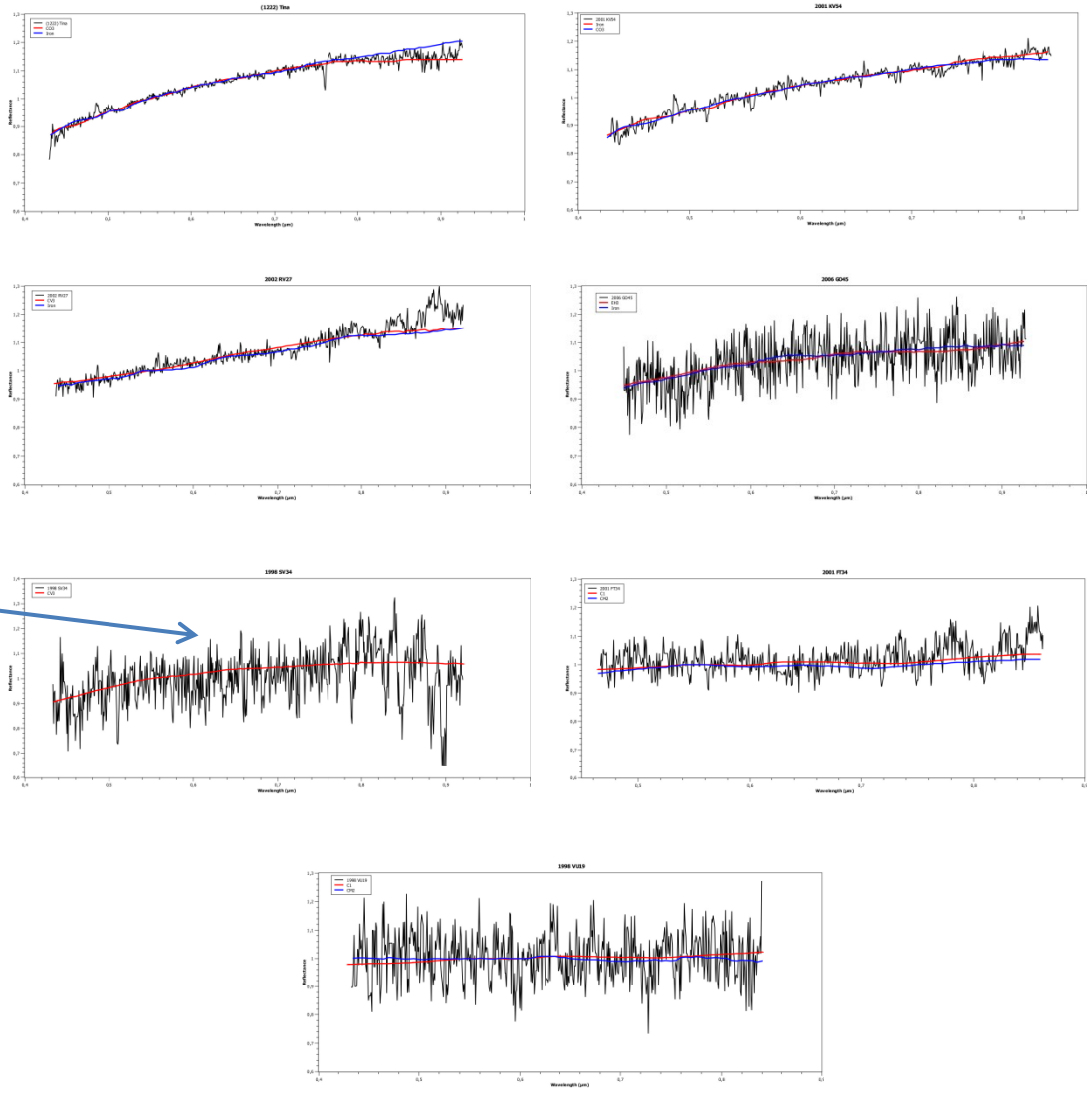
- Flat/solar NIR colours (2MASS)
- No physical infos about family members →

spectroscopic (ESO/VLT, 7 targets) and photometric (TNG, 16 targets) observational campaign

# Preliminary results (1/2)

**7 visible spectra with VLT/FORS2**

- Mix of X and C spectral types
- Meteorite comparison:
  - CV/CO/Iron (X-types)
  - C1/CM2 (C-types)
- Aqueous alteration?



# Preliminary results (2/2)

**7 visible spectra with VLT/FORS2**

**+**

**16 targets with BVRI photometry (TNG/LRS)**

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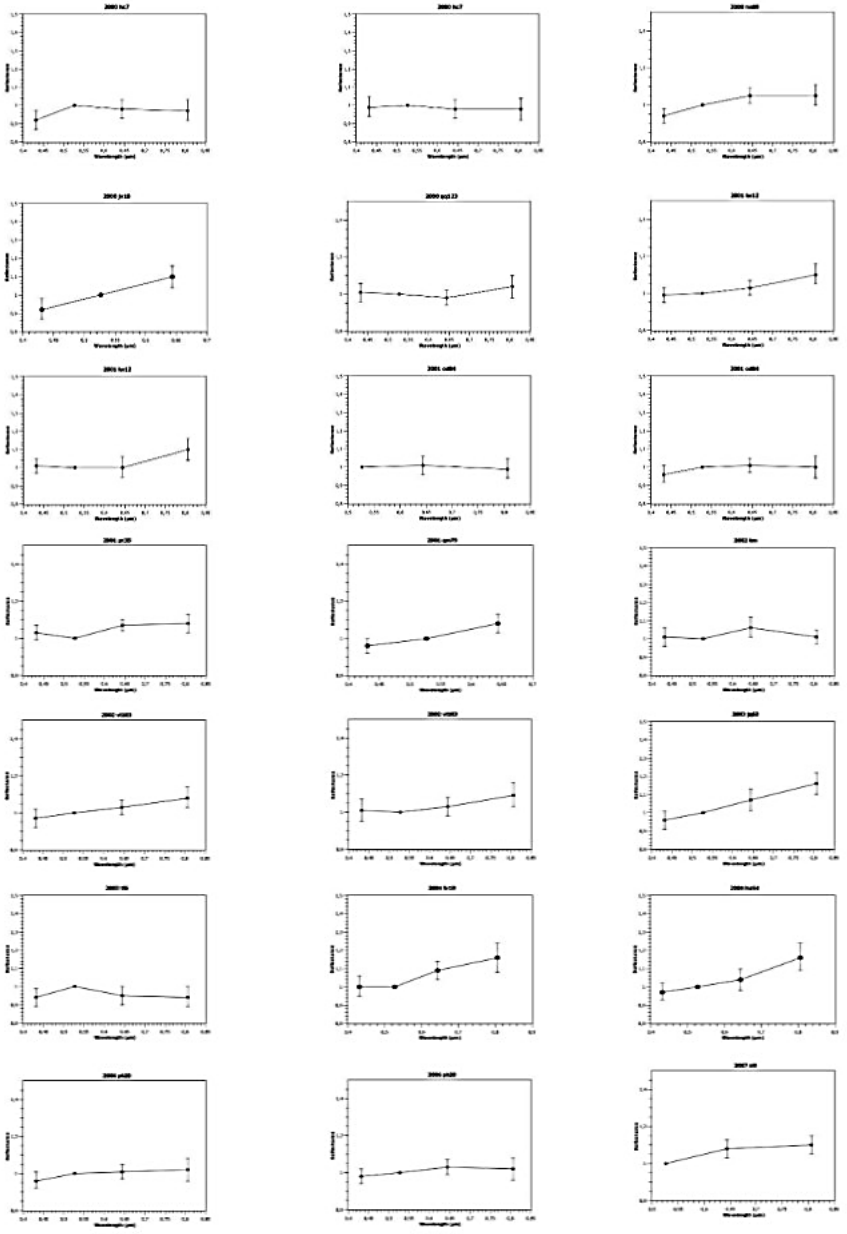
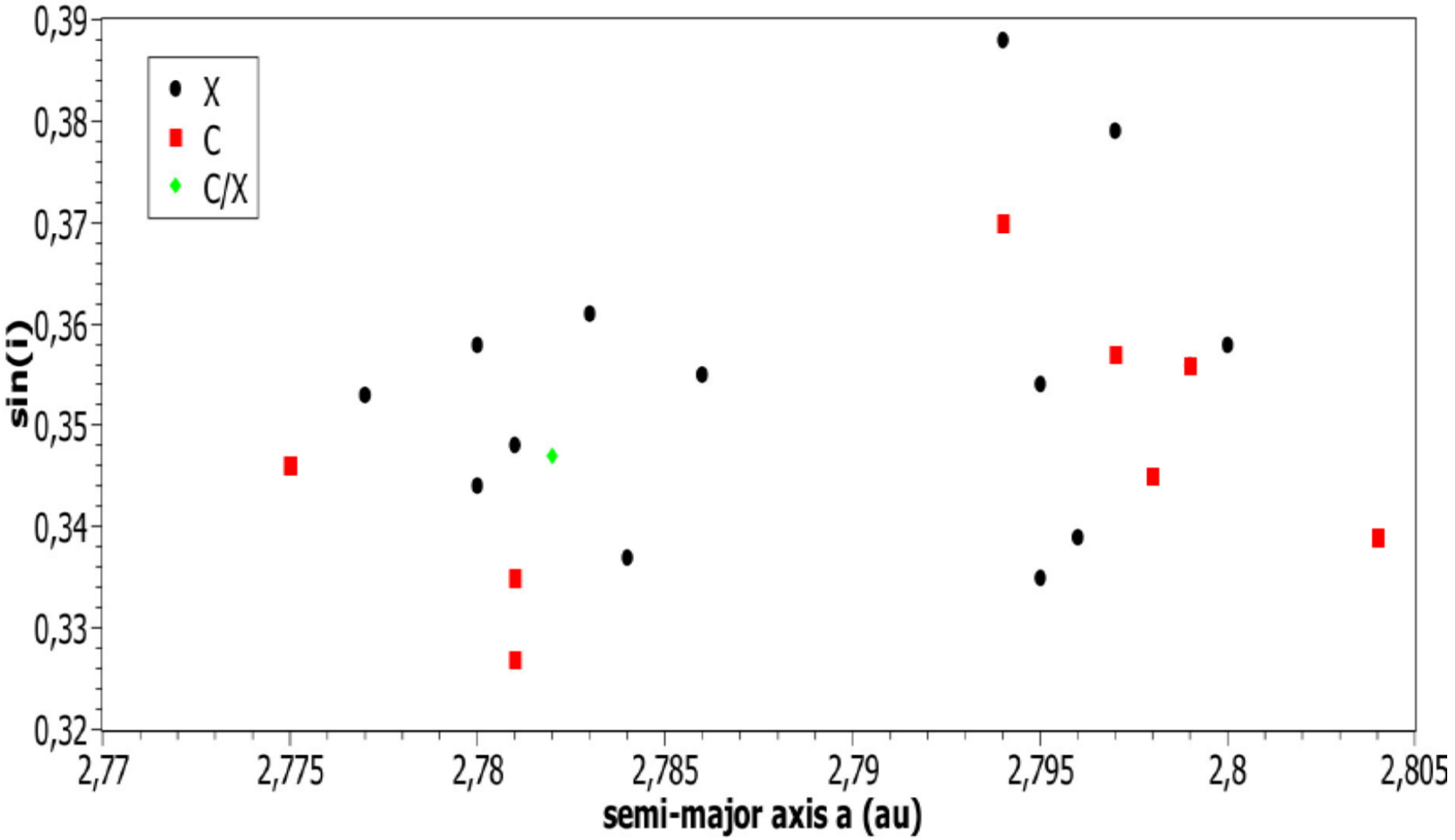
Taxonomic classification:

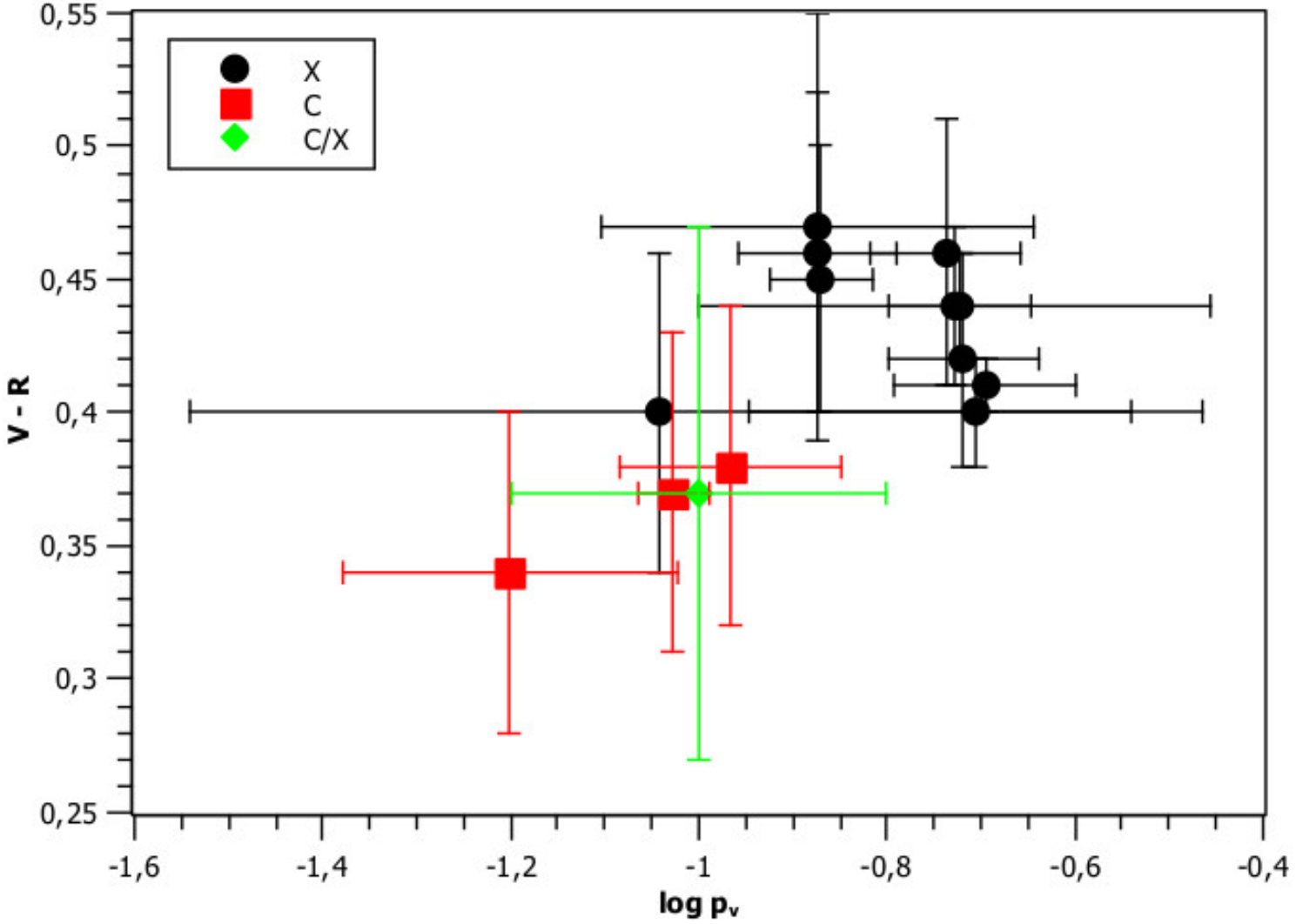
| | |
|---|---|
| 14 | X-complex |
| 8 | C-complex |
| 1 | C/X |



# Physical vs. dynamical properties

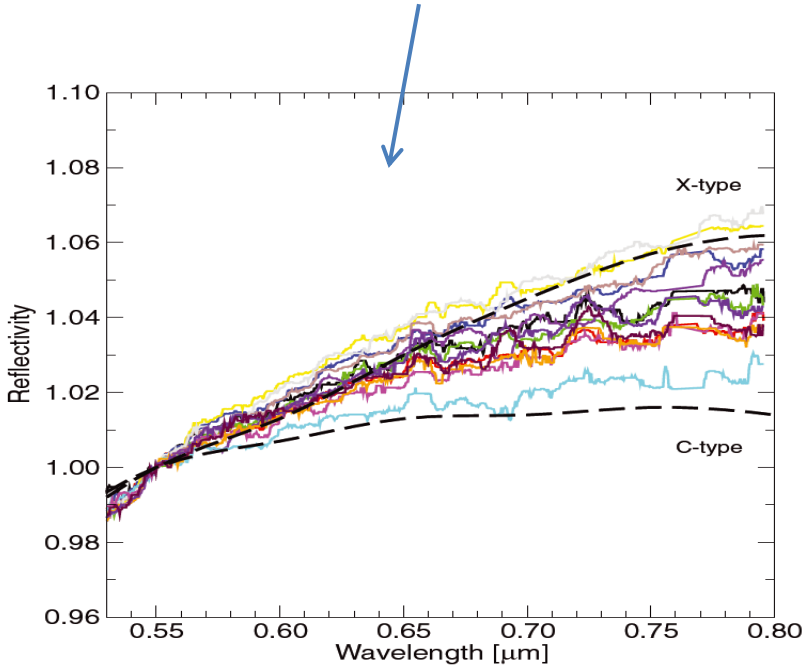


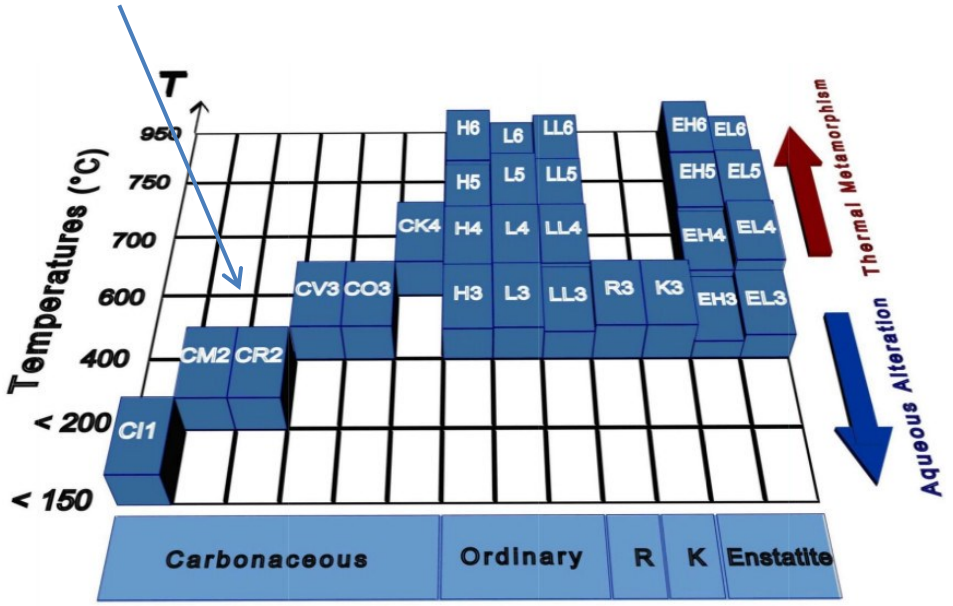
# Colour-albedo plot



# In summary: a very intriguing family!

- C-types are interlopers / background objects?
- C-types from a different parent body? The impactor?
- Common “Lutetia-like” and/or differentiated parent body?





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