The peculiar orbit of Vysheslavia: further hints for its Yarkovsky driven origin?

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The orbit of the asteroid 2953 Vysheslavia is presently locked in a tiny chaotic zone very close to the $5:2$ mean motion jovian resonance. Its dynamical lifetime is estimated to be of the order of only about 10 Myr. Such conclusion poses a problem, since Vysheslavia is a member of the Koronis family which is most probably about 1 Gyr old. Two main hypotheses were developed to solve this apparent contradiction: (i) Vysheslavia might be an outcome of a recent secondary fragmentation event in the family, or (ii) Vysheslavia might have been placed on its peculiar orbit by a slow inward–drift of the semimajor axis due to the Yarkovsky effect. Though we cannot disprove the first possibility, here we bring more evidence for the second scenario. Most importantly, we have identified three more asteroids (likely members of the Koronis family) that have the same metastable orbit as Vysheslavia. However, more observations (astrometric, photometric and spectroscopic) are needed to firmly conclude about the past history of these interesting objects. The results might then have a more general implications about the fate of the asteroid families close to the principal resonances in the main asteroid belt.