▸ MARS M. YAMALEEV, *Splitting properties in 2-c.e. degrees.*
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A Turing degree $\mathbf{a}$ is splittable in a class of degrees $\mathcal{C}$ avoiding an upper cone of a degree $\mathbf{d}$ if there exist degrees $\mathbf{x_0}, \mathbf{x_1} \in \mathcal{C}$ such that $\mathbf{a} = \mathbf{x_0} \cup \mathbf{x_1}$, $\mathbf{x_i} < \mathbf{a}$ and $\mathbf{d} \not\leq \mathbf{x_i}$ for $i = 0, 1$. The following theorem presents sufficient conditions for a properly 2-computably enumerable (2-c.e.) degree to be splittable in $\mathbf{D_2}$ avoiding the upper cone of another properly 2-c.e. degree.

Theorem 1. *Let* $\mathbf{a}$ *and* $\mathbf{d}$ *be properly 2-c.e. degrees such that* $\mathbf{0} < \mathbf{d} < \mathbf{a}$ *and there are no c.e. degrees between* $\mathbf{a}$ *and* $\mathbf{d}$. *Then the degree* $\mathbf{a}$ *is splittable in* $\mathbf{D_2}$ *avoiding the upper cone of* $\mathbf{d}$.

Theorem 1 holds when $\mathbf{d}$ is a $\Delta^{\mathbf{0}}_{\mathbf{2}}$-degree, which does not contain c.e. sets. Theorem 2 states that the well-known bubble (see [1]) can be constructed in low 2-c.e. degrees.

Theorem 2. *There exist low noncomputable 2-c.e. degrees* $\mathbf{b} < \mathbf{a}$ *such that for any 2-c.e. degree* $\mathbf{v} \leq \mathbf{a}$ *either* $\mathbf{v} \leq \mathbf{b}$ *or* $\mathbf{b} \leq \mathbf{v}$.

As a consequence we obtain the following: the partial orders of m-low c.e. and m-low 2-c.e. degrees are not elementarily equivalent for any $m \geq 1$. Also, I will talk about a link between splitting properties (Theorem 1) and the bubbles and how the link could be uniformly adapted to higher levels of the Ershov's hierarchy.

[1] Arslanov M.M., Kalimullin I.Sh., Lempp S., *On Downey's conjecture.*, ***The Journal of Symbolic Logic***, to appear. (http://www.math.wisc.edu/ lempp/papers)