The Local Enumeration Degree Structures

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In this paper, we study first-order theories of the partial orderings of the Σ_2, Δ_2, total and n-c. e. enumeration degrees for different $n > 1$. We describe some recent results related to these structures. They consist of two parts. In the first part, we consider sentences in an expanded language which distinguish n-c. e. degrees for different $n > 1$ and study the complexity of these sentences. In the second part, we study algebraic properties of these structures (diamond embedding, cupping and capping properties, splitting of a given degree above another degree etc).

(Joint work with S.B. Cooper and I.Sh. Kalimullin)

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