FINE HIERARCHY RELATIVE TO TURING REDUCIBILITY

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In the 1980s, V. Selivanov used typed Boolean combinations of arithmetical sets to obtain a refinement of the arithmetical hierarchy. Selivanov's *fine hierarchy* covers finite levels of the relativized Ershov hierarchy and allows to capture more delicate properties of the arithmetical sets. In the series of works, V. Selivanov proposed several definitions of the fine hierarchy and showed their equivalence, also he showed that all levels are proper relative to m-reducibility. A few years ago in a joint work we started to consider the same question for the Turing reducibility, namely: which levels of the fine hierarchy are proper relative to Turing reducibility? I will talk about the recent achievements on this question based on our several joint works (with A.Melnikov and V.Selivanov).

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