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In this talk, we survey our recent work on applications of computability theory to descriptive set theory and related areas. Applications of our method range over the studies on decomposability of Borel functions [1, 2], Borel isomorphism problems related to infinite dimensional topology [4], the Wadge degree structures of BQO-valued Borel functions [3], and so on. We explain how computability-theoretic methods are involved in these studies.

[1] VASSILIOS GREGORIADES, TAKAYUKI KIHARA, AND KENG MENG NG, *Turing degrees in Polish spaces and decomposability of Borel functions*, submitted in 2014, arXiv: 1410.1052

[2] TAKAYUKI KIHARA, *Decomposing Borel functions using the Shore-Slaman join theorem*, *Fundamenta Mathematicae*, vol 230 (2015), pp. 1–13.

[3] TAKAYUKI KIHARA, AND ANTONIO MONTALBÁN, *On the structure of the Wadge degrees of BQO-valued Borel functions*, to appear in *Transactions of the American Mathematical Society*.

[4] TAKAYUKI KIHARA, AND ARNO PAULY, *Point degree spectra of represented spaces*, submitted in 2015, arXiv: 1405.6866