Classes of computably enumerable degrees realizable in Π^0_1 classes

Rod Downey, Victoria University of Wellington, New Zealand

Abstract. The Kreisel Basis theorem says that every Π^0_1 class has a member of computably enumerable degree. The question arises as to what kinds of computably enumerable degrees can be realized in a Π^0_1 class. For example,, if the class is a separating class coding PA, then the class of c.e. degrees realizable in that class is a singleton consisting of $\mathbf{0}'$ by Arslanov's completeness criterion.

This is a new project aimed at understanding the possible collections of computably enumerable degrees of members. Can one have exactly two c.e. members? Can we have any Π^0_2 collection of c.e degrees? What about if the class is special, meaning that it has no computable members? What about if the class is a separating class?

Joint work with : Csima and Ng, and Greenberg, Turetsky, and Wu.