Geoffrey LaForte, *Isolation in higher degree types*
Institute for Human and Machine Cognition,11000 University Parkway, Pensacola, FL, 32514, USA.
E-mail: glaforte@ai.uwf.edu

Isolation arises when there is some pair of degrees $\mathbf{a} < \mathbf{b}$ such that there do not exist any degrees of some specified class $\mathcal{C}$ between the two. Isolation is interesting as a weaker, and therefore more widespread, version of nondensity. Additionally, isolation often provides an example of a maximal $\mathcal{C}$-degree $\mathbf{a}$ for which $\mathbf{b}$ is CEA. The simplest case of any interest arises in the context of the difference hierarchy when $\mathbf{a}$ is c.e., $\mathbf{b}$ is d.c.e., and $\mathcal{C}$ is the class of c.e. degrees. In this case, $\mathbf{a}$ is called an isolated d.c.e. degree. Recent work by Cooper and Yi [2], Arslanov, Lempp and Shore [1], and LaForte [3] has focused on these isolated d.c.e. degrees. We give some results about the situation at higher levels in the difference hierarchy. We also examine the more general situation of isolation in the CEA-hierarchy, where things are more complex because the sets involved are not Δ^0_2.

References

[1] M.M. Arslanov, S. Lempp, R.A. Shore, *On isolating r.e. and isolated d.r.e. degrees*, **Computability, enumerability, unsolvability** (S.B. Cooper *et. al.*, editors), London Math. Soc. Lecture Notes, no. **224**, Cambridge Univ. Press, (1996) pp. 61-80.

[2] S.B. Cooper and X. Yi, *Isolated d.r.e. degrees*, Math. Log. Quarterly, vol.**42**, no. **2** (1996).

[3] G. LaForte, *The isolated d.r.e. dgrees are dense in the r.e. degrees* Math. Log. Quarterly, vol.**42**, no. **2** (1996) pp.83-103.