Post's Programme Revisited

Rod Downey,
Victoria University
Wellington, New Zealand.

Post's programme asked for a thinness property of the lattice of supersets of a computably enumerable set which guaranteed an incomplete noncomputable Turing degree. Whilst realized in a more general form by Harrington and Soare, this programme is known to fail since no property of the lattice of supersets alone can guarantee these properties. However, various authors have realized that peoperties of the lattices of supersets intertwine with some of the strong reducibilities of classical computability theory. We characterize the computably enumerable sets which can be computed from a maximal set by a wtt-reduction. To do this we introduce new hierarchies of degrees based on the behaviour of the *wtt-jump*.

Joint work with Klaus Ambos-Spies and Martin Monath from Heidelberg.