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*The join property and  $low_2$  r.e. degrees*

A degree  $\mathbf{d}$  has the *join property* if for every nonzero degree  $\mathbf{b} < \mathbf{d}$ , there is a degree  $\mathbf{c} < \mathbf{d}$  such that  $\mathbf{b} \vee \mathbf{c} = \mathbf{d}$ . In this talk I will present some recent progress on this topic. In particular, an r.e. degree is  $low_2$  (i.e., its double jump equals  $\mathbf{0}''$ ) if and only if there is a  $\Delta_2^0$  degree above it which fails to satisfy the join property.