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The join property and low$_2$ r.e. degrees

A degree $d$ has the join property if for every nonzero degree $b < d$, there is a degree $c < d$ such that $b \lor c = d$. 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 $0''$) if and only if there is a $\Delta^0_3$ degree above it which fails to satisfy the join property.