THE FINITE BASIS PROBLEM

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Let $\mathcal{C}$ be a class of structures. (For example, $\mathcal{C}$ could be the class of countably infinite graphs.) Then a *basis* for $\mathcal{C}$ is a collection $\mathcal{B} \subseteq \mathcal{C}$ such that for each $C \in \mathcal{C}$, there exists $B \in \mathcal{B}$ such that B embeds into C. The *Finite Basis Problem* asks whether $\mathcal{C}$ has a finite basis. In this talk, we shall begin by solving the Finite Basis Problem for the cases when:

- $\mathcal{C} =$ the class of countably infinite graphs;
- $\mathcal{C} =$ the class of countably infinite linear orders;
- $\mathcal{C} =$ the class of countably infinite partial orders;
- $\mathcal{C} =$ the class of countably infinite groups.

Then we shall consider the more challenging cases when $\mathcal{C}$ is the class of uncountable graphs or uncountable linear orders.